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The Journal of the Fire Protection Profession Since 1877

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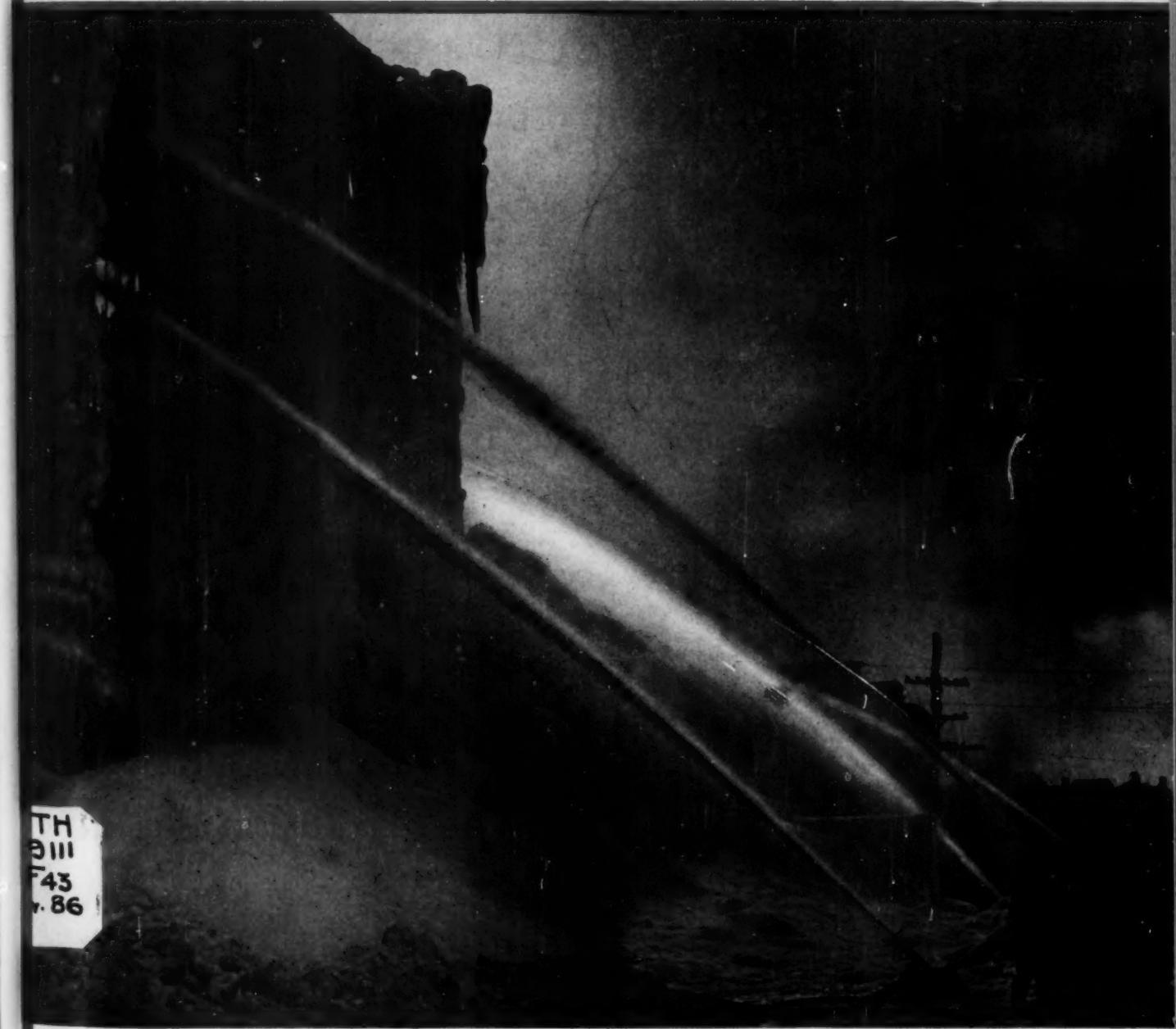

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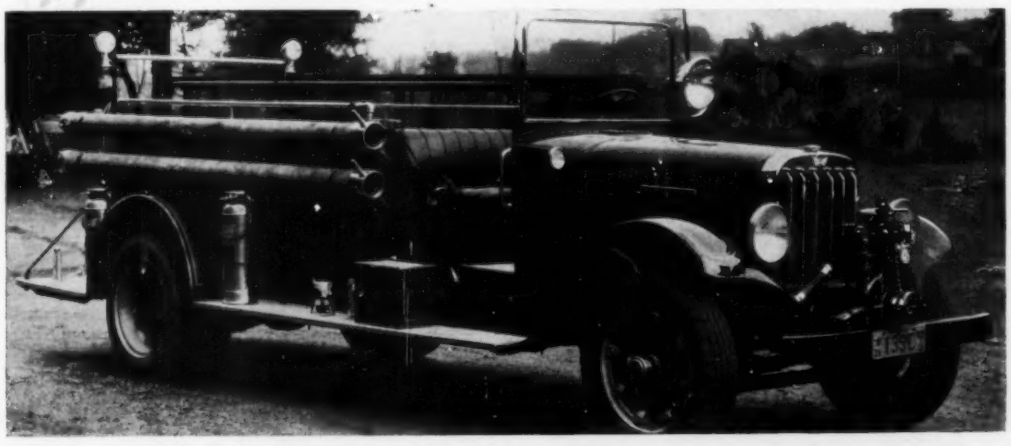

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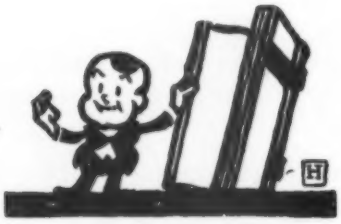

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Published the tenth of each month by
CASE - SHEPPERD - MANN PUBLISHING CORPORATION
Also publishers of "Water Works Engineering," and "Municipal Sanitation"
General Offices—24 West 40th St., New York

SUBSCRIPTION PRICE
U. S., $2 a year; Canada, $2.50
Foreign, $3; Single copies, 25c

KARL M. MANN, President
I. HERBERT CASE, Vice-Pres. and General Manager
W. J. GIBSON, Advertising Manager
H. S. ESSEX, Production Manager

CHICAGO: 6 N. Michigan Ave.—W. S. CLEVENGER, L. M. ROCHE: SAN FRANCISCO: 1045 Sansome St.—C. H. WOOLLEY, W. V. WOEHLER.

Entered as second class matter April 15, 1929, at the Post Office at New York, N. Y., under the Act of March 3, 1879.

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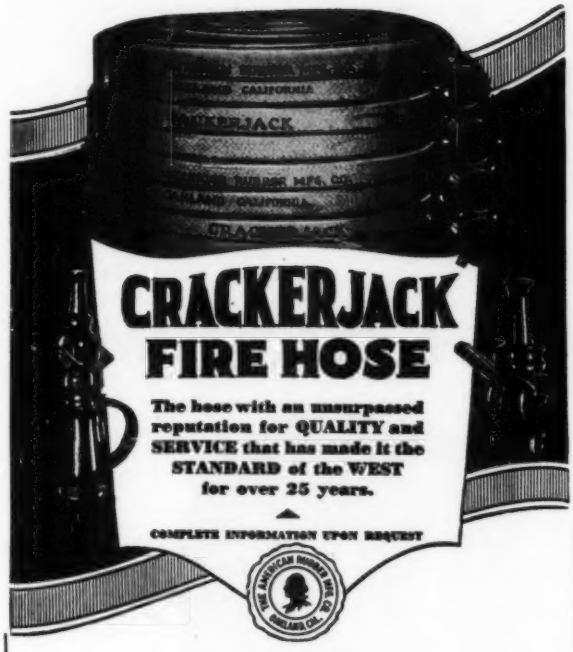
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FIRE ENGINEERING

The Journal of the Fire Protection Profession

Volume 86 JANUARY, 1933 Number 1

With the Editor

Another Argument for Fire Alarm Systems

A couple of months ago more than 1,000 telephones were put out of commission in the west end of Beaumont, Texas, as a result of a fire in a small dwelling. A telephone cable strung along an alley and adjacent to this house was severed by the fire.

There have always been plenty of sound arguments against depending upon the telephone for the transmission of fire alarms, but this incident illustrates in a most conspicuous manner one of the many weaknesses of telephone systems for emergency signalling.

Fire alarm systems are usually installed in a much more secure manner and as a result, fire alarm circuits rarely go out of commission.

The loss of time in transmitting an alarm under such conditions as those resulting from the fire at Beaumont, should the telephone be depended upon alone, can easily be imagined. If there were no fire alarm boxes in sight, a person would be inclined to go to his next door neighbor for the use of the telephone. Finding his next door neighbor's telephone also out of commission, he would probably proceed down the street and after a few calls would arrive at the conclusion that the entire telephone system was out of order, and would probably proceed to some business establishment or to the nearest fire house to deliver the message.

At night, injury to the telephone wires might not be detected, particularly where no calls were coming in. On the other hand, the breaking of a fire alarm circuit is readily disclosed and prompt repair assured.

The uninitiated is apt to overlook the differences between electrical equipment designed and installed for emergency signalling and that for commercial use. With the former, dependability is the prime consideration; cost comes second. In the case of the latter, cost and performance are factors of equal importance, for, if a telephone circuit goes out of commission, a little inconvenience is about all the harm produced.

Not so with the fire alarm circuit: a conflagration may result from a delayed alarm caused by a "dead" circuit.

Records of fire departments show in a most convincing manner the vast superiority of modern fire alarm systems over telephones when it comes to accurate and dependable transmission of alarms. In addition to the mechanical and electrical superiority, the human element is practically eliminated.

In these times of unrest no unnecessary chances should be taken. The fire alarm system should be kept in the best of condition, and sufficient boxes provided so that in no case should it be necessary to travel more than a block to reach one.

Fred Sheppard

Hazards of Fumigants

In this article, fire-fighters, and more so members of rescue companies, will find a vast amount of authoritative and valuable information.

By C. L. WILLIAMS,
Surgeon,
United States Public Health Service

HYDROCYANIC acid is one of the most rapidly fatal poisons known to man. Because of this fact its use as a fumigant is attended by grave hazards to human life. These hazards may be guarded against, but their elimination requires the most meticulous care as well as a wide and thorough knowledge of behavior of the gas. Handled by experts it is reasonably safe, but in the hands of the ignorant, reckless, or careless, it is a frequent cause of fatal accidents, as may be verified in the files of our daily newspapers.

Hydrocyanic acid gas is our nearest approach to the ideal fumigant. Confined in inclosed spaces, quite small amounts destroy all animal life therein; but when liberated in the open air its dissipation is so rapid that it requires very large quantities to produce fatal results in human beings. It is this property of rapid dissipation in the open that permits its use as a fumigant. If it were not for this, fumigators could hardly handle the gas, and upon opening a fumigated building passers-by would be killed, whereas, as a matter of fact, it is practically impossible to force gas out of a building in sufficient volume to become dangerous to persons in the open air.

Gas Very Penetrating in Nature

The gas is very penetrating; it will actually penetrate a brick wall if given sufficient time, although within the time allowed for fumigation this rarely occurs. Of course penetration through cracks in a wall is another matter. It will penetrate into the center of a sack of flour in about two hours; and if the concentration is maintained sufficiently high, enough gas will penetrate a sack of flour in six hours to kill weevils. Highly porous material is very rapidly penetrated by this gas—a fact of considerable importance to fumigators, since the gas penetrates their clothing almost at once.

Penetration being merely one feature of diffusion, it is not surprising to find that the gas also rapidly passes out of materials it has penetrated. A comparatively short stay in the open air will remove most of the gas from fumigated articles. An hour's airing, for example, renders a mattress safe to sleep on, unless an excessively heavy concentration of gas has been used. Water, however, absorbs hydrocyanic acid and holds it, particularly in cold weather, so that after fumigation, moist articles require longer airing than dry ones. Ordinarily, gas absorbed by collections of water is given off so slowly that it is not dangerous; but occasionally a relatively large amount is taken up on a cold day, and when a warm day follows, the gas is then given off more rapidly. One or two accidents on ships have been attributed to gas absorbed and later released from bilge water under such circumstances. On one occasion the ship passed from a cold area into the warm waters of the Gulf Stream.

From what has been said of dissipation of the gas in the open air it will be realized that it is only when gas is liberated in closed spaces, such as closed rooms or ships' holds, that it becomes dangerous.

Hydrocyanic acid gas is not injurious to the vast majority of the articles of commerce. In the concentrations used for ship fumigations to kill rats it is not injurious to any known material, including such delicately flavored commodities as tea and tobacco. This is a very important consideration and one of the dominating ones in the establishment of this gas as a fumigant. In heavier concentrations (10 ounces per 1,000 cubic feet) it is injurious to delicate vegetables, such as lettuce and probably to bananas, interfering with the ripening processes.

Because only small amounts are required, hydrocyanic acid gas is a cheap fumigant, probably the cheapest effective fumigant. For the destruction of rats, only two ounces of HCN per 1,000 cubic feet of space is required. At $1 a pound, this amount costs 12½ cents.

Methods of Use

Hydrocyanic acid is used as a fumigant in one of three ways:

(1) It is generated on the premises.

(2) It is supplied ready prepared as a liquid in steel cylinders, from which it is forced by air pressure and introduced as a fine spray, which at once evaporates.

(3) It is supplied as a solid which is spread on the floor. This solid form may be liquid HCN absorbed in an inert material, from which it evaporates, or it may be calcium cyanide powder, which absorbs moisture from the air and generates HCN.

The following is a list of the cyanide fumigants generally employed arranged according to the method of preparation:

Generation Methods

Hydrocyanic acid gas generated by adding sodium cyanide to 50 per cent sulphuric acid.

Hydrocyanic acid, cyanogen chloride mixture.—The gas is generated by adding NaCN and sodium chlorate to 50 per cent hydrochloric acid.

Safti-fume.—This is the same as the hydrocyanic acid-cyanogen chloride mixture, except that the NaCN and $NaClO_3$ are ready mixed with sand and other more or less inert ingredients in the form of briquettes, which are dropped into HCl.

Hydrocyanic Gas in Solid Form

Zyklon.—Liquid HCN absorbed in Fuller's earth. Packed in heavy cans.

HCN discoids.—Liquid HCN absorbed in unsized paper disks. Packed in heavy cans.

Cyanogas.—Calcium cyanide, a fine powder, packed in heavy cans.

Hydrocyanic Acid in Liquid Form

Liquid hydrocyanic acid in heavy steel cylinders. Forced through a hose and out a spray nozzle by air pressure.

Of these various preparations the most effective is liquid hydrocyanic acid. It is the most dangerous to use, both to the fumigators and to the innocent bystanders. The Interstate Commerce Commission re-

quires that it be shipped only in heavy steel cylinders; the size usually employed holds 75 pounds. Since the liquid is extremely volatile, should a cylinder be broken in a traffic accident the results might be disastrous; for despite its rapid diffusion in the open air, the large amount immediately liberated would probably overcome those in the immediate vicinity at once. However, these cylinders are very strong and no accident due to their being broken by outside force has been reported. For use on ships the liquid is transferred to smaller and lighter (tested to 600 pounds pressure) steel cylinders holding 18 and 30 pounds. These are transported on the fumigating boat. In fumigating buildings the heavy cylinders are invariably used.

Set in the tops of the cylinders are two valves. From the outlet valve a steel tube leads to the bottom, the other opens directly into the cylinder, and through it air is pumped, just before use, until a pressure of 75 to 100 pounds is reached. To the outlet valve is attached rubber pressure tubing ending in a spray nozzle; this is led into the space to be fumigated, the valve is opened, and the liquid forced out by the air pressure is sprayed into the air. The amount used is measured by placing the cylinder on a platform scale and noting the progressive loss of weight. In large buildings it is necessary to lay the hose to various parts before starting. Flour mills and similar large structures frequently fumigated are often equipped with a built-in system of lead or copper piping with an outside connection for the cylinders.

Dangers Arise from Two Sources

The dangers particularly attendant on the use of liquid hydrocyanic acid are from two sources: One is the fact that the gas reaches full concentration immediately, so that anyone caught in the building does not have time to get out. The other comes from leaks in the tubing, particularly at the joints. It is the latter that is the main danger to fumigators. As regards the former, of course, no one should be permitted to be in a building or ship about to be fumigated, and it is the fumigators' particular business to see that all are out; but despite the most careful guarding, unauthorized persons sometimes get caught. If liquid hydrocyanic acid is the fumigant they will never be caught again. This danger is a very real one, even to the best-trained fumigators. Recently on a ship a hose line, inadvertently left under pressure, was being uncoupled when a spray of liquid suddenly flared out from the loosened coupling. It missed the fumigator's face by a few inches and his trained instinct told him to keep breathing out till he was 20 feet away, so that he escaped; but for a moment it looked as though there would be a vacancy in that fumigating crew. A fumigator of 16 years' experience was killed in New Orleans by pulling apart a clogged hose line. The liquid hydrocyanic acid shot back into his face.

Fire Department Has Booth at the Mississippi State Fair

A large number of persons who attended the Mississippi State Fair were attracted to the fire prevention booth maintained by the Jackson Fire Department. Space was donated by the fair association; the cost of the booth to the department was slightly over twenty dollars. Firemen were on duty during the entire fair and they were kept busy explaining things to the visitors.

Possibility of Spontaneous Explosion in Cylinders

There is one other danger connected with liquid hydrocyanic acid and that is spontaneous explosion in the cylinders. This is not a serious danger at present, but its possibility should be kept in mind in case of cylinders that have been in storage six months or longer. When hydrocyanic acid is permitted to acquire an alkaline reaction, it disintegrates, the chemical change becoming progressively faster and faster. Nitrogen and ammonia gases are formed and these accumulating in the cylinder increase the pressure. At a certain point the reaction becomes violently explosive, sufficiently so more or less to wreck everything in the immediate vicinity. Commercially it is now preserved by the addition of acetic acid. No explosive accidents have occurred during the past several years, but the companies supplying hydrocyanic acid keep track of the cylinders and call them in three months after shipping. Tests have shown that acetic acid in proper amounts prevents explosive deterioration for a year or more, so that the safety margin is large. Explosion in fires will be referred to later.

A good gas mask protects completely against cyanide in the inspired air, at least up to a concentration materially above the concentrations usually used in fumigation of buildings or ships; but to protect the surface of the entire body, a complete rubber suit would be required. This is impractical for several reasons, not the least of which is that it would soon be most uncomfortably hot on the inside. Yet it is not so very unlikely that skin absorption of cyanide may force some such protection in certain kinds of fumigation procedure.

A person may go into a relatively concentrated gas, say 2 or 3 ounces per 1,000 cubic feet, without noting any skin effect; but if he enters a concentration of 6 to 10 ounces per 1,000 cubic feet, he will at once experience a sensation of warmth over the entire body which becomes more and more pronounced. After five minutes spent in such an atmosphere the entire skin surface becomes noticeably reddened, and sensitive persons may experience an actual burning sensation. If this warning is disregarded, a feeling of weakness appears, followed by nausea and vomiting and often by headache. A still more advanced sign of poisoning is difficulty in breathing, the subject feeling as though giant hands were holding the chest and preventing its expansion. This is the last warning, being the forerunner of loss of consciousness and paralysis of the respiratory nerve center. Experienced fumigators seldom reach this stage, but it is not unusual to see them emerge from a large building decidedly wobbly in the knees and distressingly sick. While there is not available at present any exact data regarding absorption through the skin, it is, I believe, safe to state that, protected with a good gas mask, one may remain in air containing 2 ounces HCN per 1,000 cubic feet for one-half hour without experiencing signs of poisoning. In a concentration of 4 ounces per 1,000 cubic feet, this should be reduced to 15 minutes, and in 8 ounces per 1,000 cubic feet to 5 minutes.

Numerous attempts have been made to incorporate in the fumigant gas, other gases which, due to highly irri-

tant properties, give a distinct warning of their presence, even when in quite small amounts. The aim has been to render a fumigated space literally intolerable until airing has removed all but traces of the fumigant. This objective has never been completely realized. Nearly always the warning substance used has been a tear gas, although evil smelling gases and some that primarily cause coughing or choking sensation have been tried with some success.

Rescue and Gas Concentration

The rescue of persons overcome by cyanide fumigation is likely to be a rather futile procedure, for the reason that by the time the emergency squad reaches the scene there will only be dead bodies to rescue (and this is stated without reflection on the speed of the emergency squad). By rescue, of course, is meant the removal of persons overcome from the presence of the gas. As a rule, rescue must be at least as prompt as rescue from drowning, the situations being quite analogous. Immersion in water for 10 minutes or more is generally fatal, and immersion in cyanide gases for the same length of time is likely to be equally so. In the latter case, however, there are exceptions, depending on the concentration of the gas. The lower the gas concentration, the longer the exposure that can be withstood. Consequently it is never proper to give up a person who has been in gas, even for considerable periods, until it has been definitely determined (by use of a stethoscope) that the heart has ceased beating.

The subject of rescue is inseparably bound up with gas concentration, and so a slight digression may be allowed for its consideration. The usual practice in preparing a building for fumigation is to close all openings to the outside, including sealing, with strips of gummed or greased paper, the cracks around doors and windows. The purpose of course, is to keep the gas within the building. Despite the most painstaking care, however, it is practically impossible to seal a building 100 per cent. There is always considerable leakage. If there is any considerable wind blowing, the leakage will be greatly increased. In addition to leakage, a very considerable amount of HCN gas is absorbed by the walls, floors, fittings, and stored materials, still further reducing the concentration in the air. As a result of this leakage and absorption it is very rare to find at any time an actual concentration of gas in the air as high as that calculated on the basis of the amount of fumigant introduced. If liquid HCN has been used, the maximum concentration appears at once. If the solid fumigants are used, or any of the generation methods, the highest concentration appears in from one-half to one hour after starting.

When gas masks are available, they should always be worn in rescue work; but if not available, persons may yet often be rescued without serious danger to the rescuers if the rescuers keep their heads. Time is a most important factor to the victim, and so any material wait for gas masks is not justified in cases where the victims can be quickly reached. The immediate danger is from inspired air; therefore the precaution to be taken is not to breathe. Almost anyone can hold his breath for as long as one minute. In this length of time it is quite possible to reach a man as far as 100 feet from the entrance and drag him out. In the vast majority of cases the rescuer can count on taking at least one full breath without being overcome. This assurance will permit him to continue his efforts until forced to breathe, when he should stop and return at once to the open air. This is in the interest of both himself and the victim; for if he too is overcome there are then two to be rescued instead of one. After taking four or five breaths in the open it will be possible for the rescuer to return; but on this occasion the breath can not be held as long as at first, a condition that should be kept in mind. When the taking of a breath can no longer be postponed, some 10 seconds additional time before taking an inspiration may be gained by consciously prolonging expiration. That is, when you must take a breath, breathe out first as slowly as you can and as much as you can. This extra 10 seconds is sufficient time to get to a door from a location as much as 100 feet away. When two or more rescuers are at work, one may drag the victim part way out, the other then coming in and bringing him the rest of the way.

Rescuers should, whenever possible, work in pairs, even when equipped with gas masks. If not equipped with gas masks, one man should remain in the open watching the other till he comes out. The reason for this is obvious. If the rescuer falls, the second man should go in and *bring him out first;* he can surely be saved, while the chances for the other victim are already problematical.

If there is reason to believe that the gas concentration is low, say, for example, the building has been under fumigation for six hours or more, or if persons in an adjoining building have been overcome, the rescuers may be more venturesome; but in any case they should remember that, the victim having been overcome, they too will be overcome if they stay too long. The best guide in such cases is the appearance of a sensation of weakness, particularly weakness of the legs. If difficulty in breathing in the shape of a sensation of pressure preventing expansion of the chest appears, the warning is imperative; get out at once. In any case it is usually unwise to remain in even low concentrations without a gas mask for longer than five minutes.

In rescue work there is no point to throwing open the building under fumigation as a preliminary act to the removal of the victims. The time so lost is likely to be fatal to those overcome, whose only chance is immediate removal to fresh air. There is no hope that the building will clear of gas in time to save those within. In fact, opening the building may complicate matters by liberating large volumes of gas into the immediately surrounding air. An exception should be noted in the case of gas getting into adjoining buildings. While here, too, the first object is to remove the victims the next step should usually be prevention of further unwanted gas infiltration by opening the fumigated building.

Gas Masks

Any gas mask that uses charcoal as a filtering material will protect for a time against cyanide gases. If only charcoal is present in the canister, it cannot be relied upon for longer than 10 or 15 minutes. Against the cyanides far greater protection is afforded by a canister containing an alkali such as sodium hydroxide. One type of HCN canister contains caustic pumice (a mixture of pumice and an alkali) and charcoal and protects against all types of cyanide gases for a considerable period, as much as an hour. Against cyanogen chloride the best protection is a mixture of caustic pumice and iron gel (iron hydroxide). The army canister for HCN-CNCl mixture contains these substances. Very high gas concentrations go through the canisters; that is, some of the gas gets through. The so-called all service canisters will protect against cyanide for a sufficient time to effect rescues, although in the presence of cyanogen chloride they are likely to let through enough of this substance to cause considerable discomfort.

(*To be continued*)

(Excerpts from paper presented at the Police School, New York City.)

Fighting the Oil Well Fire

This is the conclusion of the paper on Oil Well Fire Fighting, the first installment of which appeared in the December, 1932, issue.

By FRANK B. WILCOX,
Chief of Fire Department,
Culver City, Cal.

A THICK blanket may be produced on the surface of the oil by mixing proper chemical solutions and flowing the resultant foam onto the oil surface. In some cases, spreading with water will produce frothing which may produce a blanket sufficient to insulate the surface and starve the fire without applying foam.

A few cases are on record where such a froth has been produced by evaporation of emulsion in the oil itself to an extent that it extinguished the fire without the application of any outside extinguishing agent.

Crude oil fires can be extinguished with water by applying it in a very fine fog over the entire burning surface and literally diluting and cooling the vapor-air mixture with fine water particles to an extent that combustion cannot continue, thus cooling and smothering the fire. As a rule special nozzles are required to produce the fine fog necessary to extinguish low flash point refined oil, but if water can be finely atomized and well distributed throughout the flames by any method, extinguishment can be effected.

A Most Remarkable Oil Fire Photograph

This well, in the Texas oil field, was shot with 300 quarts of nitroglycerine at a depth of 3,722 feet. The shooting was made without mishap and was almost successful. However, rocks hurled against the steel derrick caused sparks which ignited an oil cloud at the crown of the derrick. Flames melted the derrick and other equipment to the ground. Fire was extinguished by steam after twenty-four hours.

The best foam equipment will not necessarily succeed in extinguishing an oil fire unless the foam is properly and effectively applied to that particular fire. In applying foam to any fire there are three fundamental principles which should be followed and adapted to the fire at hand.

Foam extinguishes partly by the cooling influence of the water, but more by its effect in cutting off the oil surface from the free space and heat waves above it, thereby stopping the formation of vapor (essential to the burning of an oil) and thus causing the starving of the fire.

Foam breaks down continuously, especially when exposed to fire, the rate of break-down depending upon the method of application, the amount of foam surface exposed, quality of the foam, and the character of the oil to which it is applied. Hence a foam stream must be applied faster than the rate at which the fire will destroy it in order to build a blanket over the entire surface. It may be desirable to shift the point at which foam is being applied, after a blanket is partly formed at one point, in order to decrease the distance the foam must travel to a fire front. When the available flow rate is large enough, faster progress can be made by applying it from several points simultaneously, but in such cases each stream must be large enough to make progress against the fire itself.

Foam must be applied gently to the oil surface, for if it is allowed to fall violently on the oil, several factors will tend to prevent it from being effective. Part of the foam which is allowed to project itself beneath the surface of the oil may be broken down by this treatment. Foam, after being temporarily submerged will carry oil which will reduce its buoyancy so that it is more easily inundated by the boiling action at the oil surface. It will become coated with oil which will burn and tend to destroy it. The foam will splash and spray oil, thus intensifying the flames. It will stir up the oil, bringing the highly heated top layer in contact with the lighter fractions at lower levels, thereby increasing volatilization with the resulting enlargement of the flames.

The turbulence under the foam stream prevents the formation of a continuous foam blanket. Experiments have shown that foam allowed to fall violently on a fire has such a low efficiency that it cannot be expected to extinguish a large oil fire.

Hence, it is apparent that if the oil below the foam is vaporized from being heated by the fire, the foam layer, will be of little value because vapors will penetrate the foam layer and will continue to burn above it, soon destroying the foam. It follows, therefore, that when foam extinguishment is attempted, the heat must be absorbed from the oil well as the area above the oil surface before foam is applied. This is accomplished by applying water fog first.

Analyzing Two Types of Well Fires

For a brief analysis let us assume two types of oil well fires, complicating each one so as to bring out important points.

First we will assume a small oil well fire. The derrick is of steel construction and is not equipped with a sprinkling system. The well is flowing under a slight pressure. Flames are extending fifty feet into the derrick. The oil in the cellar is burning and gas is flowing from outside the oil well casing and rising under slight pressure through the oil in the cellar. The heavy wooden timbers over the cellar are burning and fire has penetrated several inches through natural cracks into them.

The first step is to apply water as the primary extinguishing agent. At least one stream should be used from a play pipe with sufficient pressure and capac-

ity to cover the entire derrick above the floor to prevent its collapse. There should be sufficient fog streams to cover the derrick floor and cellar. Four fog streams will usually be sufficient. The fog streams used above the oil surface in the cellar must be so directed as to follow the fog to penetrate into the heavy burning timbers. It will be noted, within a few seconds after the fog streams are brought into play, that the fire appears to be extinguished except for the flicker of burning gas above the oil surface in the cellar. However, these streams must be left in position, for if they were shut down and the fog had not penetrated into the cracks of the heavy burning timbers, the gas rising from the oil in the cellar would reignite and an explosion would occur. When the officer in charge is confident that the wood has been extinguished and the only remaining fire is the flicker of the burning gas above the oil surface in the cellar, one of the fog streams should be shut down and a foam stream should be brought into play to cover the area with foam which the fog stream was covering. This operation is repeated with all fog streams until a complete foam blanket has covered the entire surface. Care must be used during the operation of changing from fog to foam not to disintegrate the foam. The solid stream on the derrick may be shut down as soon as the fog streams have the fire under control. Men should not be allowed on the derrick floor until the officer is certain that everything has cooled off sufficiently so that an explosion is not likely to occur. Oil shipping pumps may be set with suction lines into the cellar as soon as the fire is under control. This will prevent the cellar from overflowing and spreading oil over adjacent properties.

If the derrick on fire is of wood, or any wood is burning above the floor, exposure fires are liable to occur from flying embers dropping into other derricks, tanks, sumps, etc.

A Large Oil Well Fire

Now let us visualize another large oil well fire—3,000 barrels of oil and 30,000,000 cubic feet of gas flowing at a high pressure; flames are 200 feet high; conversation is impossible for a distance of 500 feet because of the terrific roar of the gas. The derrick is a twisted mass of steel lying around the well. Without protection it is impossible to approach closer than 200 feet. There are exposure fires in derricks, tanks, sumps, etc., on all sides of the burning well.

The first step is to confine the fire to the burning well by extinguishing exposure fires and preventing their re-ignition by keeping them covered. This is a difficult task. On one such particular fire of this type many thousands of gallons of water and over sixty tons of dry powder foam chemicals were used. Water can sometimes be used over many times by diking the exposures and connecting the fire pump suctions to the dike. This is not only economical but prevents spread of water over areas sometimes covered with oil from ruptured tanks which may be covered with a blanket of foam. Burning derricks over high pressure wells, and prevention of boil-overs in tanks, should be the paramount thought and first to be considered in covering exposures.

When the fire has been confined to the burning well, the next step is to form a plan to bring it under control. This must be done with the well burning. The hazard to life and property is too great to extinguish the burning well and then endeavor to bring it under control. As soon as possible a pilot light should be installed, usually a high pressure gas line with a burner designed in a manner difficult to extinguish. This is to prevent an explosion in case the burning well is accidentally extinguished during operation to bring the well under control. The debris around the burning well is then cleared away. It is sometimes necessary to cut the steel derrick into small pieces, using welding torches, and then dragging the pieces away with tractors and cables. A dike is constructed around the well to form a sump, and shipping pump suctions are connected to remove oil not burned when water streams are brought into play.

Use of Water Fog Lines

Before steps can be taken to design equipment to control the production, it is necessary to ascertain just what type of connections are left on the well and the condition they are in. This is accomplished by using water fog lines to approach the well and then installing a unit comprised of piping with fog nozzles attached for the purpose of covering the area at the base of the burning well with a heavy, dense fog. The fog permits men to proceed in preparing connections for installing control head or Christmas tree on the well.

Asbestos suits have been used, but they are not satisfactory unless men wearing them are covered with streams of water. The ordinary turn-out suit and helmet with asbestos shoes serve well for this purpose, when used under water streams. It is a good plan to wear a piece of asbestos between the crown of the helmet and the head.

When the connections at the well have been prepared and the control head (or Christmas tree) has been machined so that it may be easily assembled, a caterpillar power crane is used to set the Christmas tree in place. The top of the tree is left open with a control valve and an approximate twenty foot pipe extension The tree is then bolted. A packing ring is installed welded in position. Flow lines are connected to the side openings, and run to gas traps and tanks remote from the well. The control valves to these flow lines are then opened, and the control valve on top of the tree is closed, diverting production to the tanks and extinguishing the fire.

In some cases the connections on the well cannot be

Flaming Oil Being Discharged from Broken Pipe Line at Santa Fe Springs, Cal., Oil Field

put in shape so that the Christmas tree can be connected. This makes it necessary to drive a tunnel approximately 50 feet below the surface and tap the well casing, connecting suction pumps and flow lines. A heavy steel dome is placed on top of the well by means of a power crane, and covered with dirt. This diverts the flow of oil and gas through the flow lines which run through the tunnel and thence to remote gas traps and tanks.

This paper is not an attempt to dictate any policy or methods, but is merely a statement as to methods which have been successful in the past in this particular field.

(Paper presented at the San Diego Convention of the International Association of Fire Chiefs.)

A DANGEROUS PYROMANIAC IS SENT TO SING SING FOR FORTY YEARS

Arsonist, Twice Convicted, Three Times Escaped from Prison, Finally Confined in Prison for Long Term, Probably the Balance of His Life

By Wm. Jerome Daly

DESCRIBED by Chief Fire Marshal Thomas B. Brophy of New York as "the most dangerous pyromaniac I have ever met," Anthony Alloy, demon torch under the influence of liquor, twice convicted, three times escaped from prison, is finally behind prison bars, this time for forty years in Sing Sing as a second offender, which means that he will be eighty-eight years of age if he finishes his term.

At this writing he is still a prisoner; an observation made by the writer in the hope that Fire Marshals, arson detectives and others interested in protecting human life, will clip his picture, file it and familiarize themselves with his career, as he has a penchant for finding his way out of penal servitude, and it is not beyond the possibility that he might yet repeat past performances.

Very recently, Alloy, a patient in Mattewan, N. Y., State Hospital for the criminal insane, was pronounced cured and returned to the Kings County Court in Brooklyn for sentence, having been convicted June 21, 1927, by a jury for arson in the first degree as a second offender, temporarily saved from going to Sing Sing by the findings of a Commission in Lunacy. He landed in Mattewan in the summer of 1927 escaped in March, 1930, had freedom for several months, captured again only to escape in December, 1930; recaptured in March, 1932, and in the Fall of last year was marked "cured" and sent to Sing Sing for perhaps the balance of his life.

Old Time "Acquaintance" of Chief Brophy

Alloy and Fire Marshal Brophy are old "friends." They have known each other for 20 years. They met through a rather innocent and insignificant agency—a newspaper clipping—part of the filing system of "clips" which Chief Brophy has kept since his earlier newspaper reporting days on the old New York *Herald*. A series of suspicious fires in 1912 in the Morris Park and Woodhaven sections of that part of New York City known as the Borough of Queens caused the Fire Marshal to browse through his newspaper clippings, among which were a couple of paragraphs about a man arrested December 21, 1911, for a fire in River Street, Hoboken, N. J., but fined $50 for disorderly conduct. The address of the prisoner was in the Morris Park section of the Borough of Queens—the same general location then being troubled with suspicious fires.

From the Hoboken newspaper clipping, Chief Brophy got a good idea. He read Alloy's name and watched the address in Morris Park which Alloy gave to the Hoboken police. His vigilance was rewarded in a few weeks when Alloy was seen entering a cellar in Rockaway Road. Alloy was continually observed and on January 15, 1913, Brophy grabbed him for two fires in the cellar of a house in Rockaway Road. Alloy was discharged in Jamaica police court for lack of evidence. As Alloy was leaving the court room, Chief Brophy arrested him again for a fire which occurred December 16, 1912, in a house in Jamaica Avenue. He was admitted to $2,500 bail and while awaiting trial was arrested again for a fire in Rockaway Road, May 5, 1913, for which he was convicted and sentenced to an indeterminate period of from ten to twenty years in Sing Sing.

Escapes from Sing Sing Prison

On July 12, 1916, he escaped, was gone a month when recaptured, and nothing more heard about him until Decoration Day, 1922. That night two fires were discovered in the cellar of a house in Atlantic Avenue, Richmond Hill, Borough of Queens. Four occupants perished. The fires had all the earmarks of the Alloy brand, but Brophy thought Alloy was still in Sing Sing. The Fire Marshal was shocked to learn that Alloy had been released on parole without notice.

Brophy and his aides went to Alloy's house. There he was, in the flesh, and he protested vehemently that he was being hounded. He said he served only nine years because some welfare workers had interested themselves in his parole. He said he had been at home all the evening of the fatal fire and referred to a neighbor who had been a visitor to his wife the evening of the fire.

When Brophy and his men left, Alloy sent for the neighbor and cautioned her to be sure to say that he had not gone from the house at all that night. But other witnesses saw him out at a nearby cigar and candy store. Brophy arrested him. He was charged with arson and homicide; indicted and held in jail without bail for three months, when the indictment was dismissed following the death of an important witness. Alloy then moved to Brooklyn.

Sent to Mattewan Asylum in 1926

Nothing more of an official character is recorded about him until the Fall of 1926, when fire broke out at 11.42 p. m.

Anthony Alloy, Dangerous Pyromaniac, Now Sentenced to Sing Sing for Forty Years

in the cellar of 208 Irving Avenue, Brooklyn. Two blocks away similar cellar fires occurred at about the same time, followed by a third and a fourth fire in the same locality. A taxicab driver saw Alloy (whom he did not know) coming out of the cellar where the fourth fire was raging. The chauffeur told the first policeman he met, pointing out the man. Alloy was taken into custody.

At the Wilson Avenue Police Station the prisoner gave a fictitious name as policemen, reporters and others gathered about. Suddenly he glanced half way around and spied in the crowd his old friend Brophy.

"Hello Tony!" the Fire Marshal exclaimed.

"Guess I'll give my right name," responded Alloy as he continued, "Hello Chief, how are you—glad to meet you again." He apparently had been drinking and was relieved at heart.

Frenzy for Setting Fires When Intoxicated

The "friendly enemies" had a long and confidential chat, Brophy shattering every alibi. Alloy's only explanation was that when he drank liquor the frenzy seized him to set fires and he could not resist the impulse.

The evidence of two separate fires, in the night time, in a place where persons lived, made it first degree arson. The jury after three days trial found him guilty. The Lunacy Commission recommended Mattewan Asylum, but now while sober he is no longer a lunatic in the eyes of the law of the State of New York. Chief Brophy, however, still thinks of him in terms of "alcoholic pyromania," after twenty years of unrelenting surveillance, which had its start in the newspaper reporters clipping system about a man from Morris Park arrested in Hoboken, and so it goes in the daily grind of an arson sleuth in the metropolis of the world—the criminal can't win!

Interpretation of the Law Regarding

Liability for Compensation

By LEO T. PARKER, Attorney-at-Law

MUNICIPAL liability for compensation may arise from adverse verdicts in suits filed by injured citizens or employees under certain circumstances.

It is well known, however, that a municipality never is liable under *common law* for injuries caused while its employees are performing governmental duties, such as operation and conduction of its Fire Department. This rule is applicable because duties of this nature are performed without compensation to such department.

On the other hand, a valid state law, or properly authorized city ordinance, may obligate the city to pay compensation, as pensions or compensation for injuries, where under the common law no such liability could exist. Therefore, in many instances the liability of a municipality for payment of compensation depends upon the legal interpretation of a state law or city ordinance. Obviously, any person or employee who fails to comply with a valid law is deemed negligent and, therefore, forfeits his right to compensation.

Many Courts have held that a municipality *never* is liable in damages for an injury sustained to persons or property, although as a result of negligence of a city official or employee if the latter acts outside the scope of his employment.

For example, in city of Danville Vs. Vanarsdale, 48 S. W. (2d) 5, it was shown that the City Manager agreed to furnish free water for benefit of citizens in filling a swimming pool. According to the city laws the Manager had no authority to furnish free water. One day a laborer, in the employ of the city, attached a fire hose to a hydrant and laid it across the sidewalk intending to fill the pool. A citizen, who was walking on the sidewalk, tripped over the fire hose. He filed suit against the city to recover damages for injuries. However, the higher Court held the city not liable, and stated the following important law:

"The Manager or acting superintendent of defendant (city), as well as the employee who actually put the fire hose across the walk at the place where plaintiff (pedestrian) was injured, were acting outside of any duty to the city either expressly given or within the scope of their employment. . . . The gratuitous furnishing of free water for the proven undertaking in this case by the purely accommodating and voluntary actions of such agent and employee, as well as all acts of theirs looking to the accomplishment of that purpose, including means and methods, was outside of and beyond their authority, and to hold the city liable for all consequences resulting therefrom would be a most dangerous rule to engraft on the present limitations of municipal liability in such cases."

Subjects Treated in This Article

City Not Liable for Injury from Tripping Over Hose

Injury Caused by Fire Apparatus

Liability for Violating City Ordinance

When Law Prohibiting Obstruction of Street Is Invalid as to Discretion of Fire Commissioner

Definition of "Casual Injuries"

Injury Caused by Fire Apparatus

It is well established law that almost all Courts in all states have held that a city is not liable in damages for an injury effected pedestrians or other citizens while the employees of the city are performing a governmental function, such as conduction of its Fire Department. However, as previously explained, a state may enact a valid law which results in liability of a city for such injury. This point of the law was discussed in the late case of Schumacher Vs. City of Milwaukee, 243 N. W. 756.

The facts of this case are that a state enacted a law, as follows:

"Any person, firm or corporation suffering any damage proximately resulting from the negligent operations of a motor vehicle owned and operated by any city . . . may file a claim therefor against such city and the Common Council of such city shall have the right to allow, compromise, settle and pay the same. In the event such claim is disallowed, the claimant may then institute an action therefor against such city."

While fire apparatus of the Fire Department was traveling to a fire it struck a pedestrian which resulted in serious injuries to the latter. The pedestrian filed suit against the city to recover damages.

It was contended by the counsel for the city that the above mentioned law creates no right of suit against the city; that it merely confers upon the Common Council of the city a right in the exercise of its discretion, to allow and pay claims of the nature described.

As to trucks operated by a city in its proprietary capacity, the Court held the statute effects and also that the city was liable where the injury was effected by its servants in the discharge of a governmental function. This Court said:

"While language (in the law) might have been used which was more definite and certain, construing the act as a whole, having reference to the law as it was at the time the act was passed, it is considered that the clear legislative intent and purpose was to create a liability on the part of the city in favor of those who were injured by the negligent operation of vehicles owned and operated by the city in the discharge of a governmental function as well as in its proprietary capacity."

In another case, Wyatt Vs. Henderson, 222 Ky. 292, it was disclosed that members of the Fire Department washed off a street with a fire hose attached to a fire plug and the water froze. A pedestrian fell upon the

ice and sustained injuries for which he filed suit.

It is interesting to observe that the Court held the city not liable because the firemen who did the washing were acting for governmental purposes and no law obligated the municipality to pay compensation.

Liability for Violating Ordinance

The law is well settled that a person who violates a valid city ordinance, not only is liable to conviction but is legally negligent and, therefore, is precluded from recovering damages from a city employee whose acts contributed to the injury. Also, any reasonable city ordinance intended to reduce hazards is valid. The latest higher Court case involving this important point of the law is Magnolia Co. Vs. Beck Dry Cleaning Co., 41 S. W. (2d) 488.

In this case it was shown that a city ordinance specified, as follows:

"Such buildings (cleaning establishments) shall be further ventilated by means of exhaust fans of sufficient capacity to change the air in the building every three minutes and shall be kept in operation at all times during the use of such building. Such exhaust fan shall be located in an airtight conduit, whose inlet openings shall be at or near the floor level in the wall fartherest away from any other building or structure and the discharge end of such conduit shall be carried over the roof of such building."

Evidence was introduced showing that a proprietor of a dry cleaning establishment failed to construct his building in accordance with the provisions of this ordinance. An explosion occurred in which he was seriously injured and the higher Court held that he was negligent and therefore not entitled to recover compensation since the ordinance was valid and enforceable. This Court said:

"Under all the circumstances and in view of express terms of the charter, we must overrule the contention that the ordinance is void. . . . In the light of the principles so announced, how can it be disputed that the negligence as found by the jury on the part of appellee in failing to ventilate his premises so as to permit the escape of the inflammable gas that arose during his operations and use of the quantity of naphtha on hand was not at least a contributing cause of the explosion that occurred and of its consequent injuries?"

Law on Obstruction of Street Held Invalid

Generally speaking, any law is valid and enforceable which prohibits obstruction of city streets or sidewalks. So held a higher Court in the late case of City of Neenah Vs. Krueger, 240 N. W. 402.

Here it was shown that a City Council passed an ordinance which made it unlawful for any person without a permit

"to dig or remove any dirt or other material from or on any street or alley, or any part thereof, in the city of Neenah; or to encumber or obstruct any street or alley, or any part thereof, by placing or causing to be placed thereon, any dirt, rubbish, timber, or building material or any other material or substance whatever."

A company obstructed a sidewalk and left only a narrow passageway. Legal proceedings were instituted against the company whose officials contended that the reason they permitted the material to remain on the sidewalk was because their warehouse was temporarily out of repair. Notwithstanding this argument, the lower Court held the company liable and the higher Court sustained this verdict, and said:

"It is urged that the ordinance does not apply to merchandise. The law recognizes that the owner of property, even though it be situated upon a public street, has a right of ingress and egress to and from his premises. . . . Had a fire broken out in that vicinity it is obvious that these crates would have been a serious hindrance to the operations of the Fire Department. The obstruction therefore was neither inconsiderable in duration nor as to space encumbered in view of the character of the location."

It is very apparent that any reasonable state or city law is valid which is intended to reduce hazard, irrespective whether such law is designed to prevent injury to city property, municipal employees, private property or citizens.

Discretion of Fire Commissioner

Considerable discussion has arisen from time to time whether or not a Fire Commissioner, or other municipal official, has a legal right to use his own judgment when settling claims involving compensation authorized by law, or similar controversies.

It is well settled law that a Fire Commissioner may exercise reasonable discretion to act within the authority of a state law, city ordinance or fire department rule, but he must not exceed his expressed or implied authority. This point of the law was considered in the recent case of McGovern vs. City of Boston, 181 N. E. 663.

The facts of this case are that a municipal fireman had been injured in the course of his duty from a cause arising out of his employment and had been incapacitated in consequence.

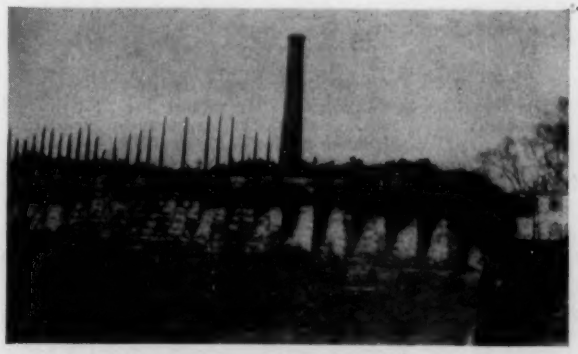
A rule of the department provides that "a member of the Department . . . (is) entitled to receive pay while on leave of absence due to an injury received in the line of duty."

The fireman was on such leave of absence for about fifteen months. Subsequently he filed suit against the city to recover his salary from July until the following February. In holding the fireman entitled to a recovery, the Court said:

"There can be no denial that a power had been exercised by the Commissioner, a power which, in a sense, can be termed a discretionary power. . . . His action, on his testimony, could be found to have been determined by his belief upon a single element in his problem—the binding effect of the board's communication. There is nothing to require a finding that after weighing other considerations involved in his decision he decided to give greatest weight to the letter from the board. On the contrary, there is much to lead to the conviction that he acted without exercise of his own judgment on all the circumstances of the plaintiff's claim to payment—acted purely as the executive of another's decree. If so, he did not exercise the discretion vested in him by the rules and their preamble."

Illustrations of Casual Injuries

The Courts of the various jurisdictions have held that all diseases are "injuries" where there is a causal connection between the fireman's work and the disease.



Ice That Refused to "Get Hot"

When a large ice house was destroyed in Lowell, Mass., on the banks of the Merrimac River, the ruins presented a most unusual sight. About half of the ice cakes survived the intense heat of the fire—the building was razed but the ice remained.

HARRY BELKNAP.

The same construction has been given to accident insurance policies which insure against bodily injuries sustained through accidental means.

In one case, 265 Pac. 207, it was shown that the employee suffered an infection caused by contact with germs in the course of his employment. In holding this disease to be an injury, the Court, in the course of its opinion, said:

"From the standpoint of pure reason, whether bodily injury which produces a weakening or disintegration of the physical system is caused by flying germs or by flying shrapnel or by a poisoned arrow or by the sting of an insect is only a matter of degree as to the size or quality of the missile or instrumentality inflicting the injury."

In another case, Buckley Vs. Roche, 4 P. (2d) 929, it was disclosed that the charter provisions of the city and county provides for pensions of families of members of the department who may be killed or injured while in the performance of their duties. One man named Buckley, a member of the department, in climbing a flight of stairs where his services in the performance of his duty were required, suffered a heart spasm from which thereafter and in a few hours he died. His widow made application for the benefits provided for under the charter.

Although the lower Court held the widow not entitled to a pension, the higher Court reversed this verdict.

The latest higher Court case involving a similar point of the law is Casserly Vs. City of Oakland, 12 P. (2d) 425. In this case it was shown that a member of a city Fire Department died as a result of contracting pneumonia while in the performance of his duties as a fireman. The fireman's widow filed an application for a pension which was denied. She appealed to the higher Court which promptly granted the pension, and said:

"The sole question here presented is whether a fireman who contracts a disease in the performance of his duty, and whose death occurs within a short time thereafter as the direct result thereof, is 'killed while in the performance of his duty'. . . . Preliminary to a discussion of this question, it may be stated that the length of time elapsing between injury and death is not controlling, provided the injuries as here received are the proximate cause of the death."

With respect to the use of the word "injury" in the provision of the city charter, the Court said:

"The words 'injury' and 'killed,' as used in the charter . . . are not limited in their interpretation to injuries caused by external violence, physical force, or as a result of accident in the sense that the words are commonly used and understood, but they are given a much broader and liberal meaning. So construed, they include *any* injury or disease arising out of and in the course of the employment, which causes incapacity or death. The word 'injury' has reference not to some break in some part of the body or some wound thereon, or the like, but rather to consequences or disability that result therefrom."

Ex-Chief Rich of Somerville, Mass., Dead

Ex-Chief Sewall M. Rich, of the Somerville, Mass., Fire Department, died on December 9 at his home in Somerville.

He retired on Pension Sept. 30, 1929, after serving as Chief for nearly twenty years. He was born in Provincetown, Mass., Nov. 6, 1866, and became a call man in the Somerville department in 1891. He was made chief in 1910.

Chief Rich was a member of the Fire Chiefs' Club of Massachusetts, the New England Association of Fire Chiefs, and the International Association of Fire Chiefs. He served for several years as chairman of the Legislative Committee of the Fire Chiefs' Club.

The surviving relatives are his wife and daughter. The funeral was held on December 12 with a largely attended service in the West Somerville Congregational Church. Burial was in Woodlawn cemetery.

HARRY BELKNAP.

Savannah, Ga., has received a new Seagrave pumper. It is named the Thomas M. Hoynes in honor of the Mayor.

SIXTEEN SHORT FIRE SCHOOLS HELD IN MISSISSIPPI IN 1932

Nine Cities and Towns Held Course Last Year —Many Departments Have Now Established Regular Course of Instruction for Firemen

THE school for firemen conducted in Greenwood, September 5 to 9 marked the end of special fire department instruction work in Mississippi last year. This work was inaugurated in May, 1931, and since that time sixteen schools have been conducted. This work was limited to the summer months due to fire chiefs' reluctance to undertake instruction courses during other months which are, normally, periods of increased fire department activity.

The procedure followed in that State differs from that in many others. Annual activity begins with the State-wide school in Jackson where instructions consist of drills and information of a general character. This school is then supplemented by schools in other cities and towns where the courses consist of drills and information to suit their specific needs.

These schools have been conducted under the auspices of the State Educational Department and the Mississippi State Rating Bureau. A competent drillmaster, who is a graduate of the New York Fire College and who has many years of active service to his credit, has been employed. A Bureau Engineer was detailed to prepare each course of instruction and to give instructions on technical subjects.

The instruction consisted of short courses lasting for one week only. Lectures supplemented by drill evolution, whereby all equipment in a department is used, were given. Salvage operations, overhauling and fire department inspection work were stressed. Instructive motion pictures were used and salvage covers together with much essential minor equipment, were carried to each school and their use demonstrated.

"The Job of Fire Fighting," a pamphlet issued by the State Educational Department in cooperation with the Mississippi State Rating Bureau, was given to every man attending these schools, for future reference. This pamphlet contains a short course in modern fire fighting suitable for the departments in this State. Examination questions covering the subject matter in the pamphlets and a series of suggested drill evolutions covering all phases of the work was given to the chiefs as an aid for routine schooling following the special courses of instruction.

Courses of instruction were held in nine Mississippi cities and towns during 1931. This number dropped to seven this year due to the unwillingness of city officials to add to their expenditures. However, two of these seven schools were in cities, namely, Meridian and Vicksburg, not served last year.

A brief summary of instruction work for 1932 is as follows:

Jackson: May 2 to 6 inclusive. All members of the Jackson department, 54, and 37 visiting firemen from thirteen Mississippi cities and towns and one Alabama city attended this school.

Tupelo: June 20 to 24 inclusive. All members of the Tupelo department, 8 full paid and 7 volunteers, and 5 visiting firemen from two towns, Amory and Pontotoc, attended the full course.

Columbus: June 27 to July 2 inclusive. All members of the Columbus department, 11 men, attended the full course.

Vicksburg: July 18 to 22 inclusive. All members of the Vicksburg department, 25 men, attended the full course.

Meridian: July 25 to 29 inclusive. All members of the Meridian department, 38 men, attended the full course.

Gulfport: August 1 to 5 inclusive. All members of the Gulfport department except the Assistant Chief, 11 men, attended the full course.

Greenwood: September 5 to 9 inclusive. All members of the Greenwood department, 14 men, attended the full course.

Fire department schools conducted during 1931 consisted of those in Biloxi, Brookhaven, Columbus, Greenwood, Gulfport, Hattiesburg, Jackson, Laurel and Tupelo.

Since the beginning of this training work all departments where schools were held have provided additional essential minor equipment, especially, forcible entry tools, small hose and mops, brooms and squeegees. Seven departments, namely those in Biloxi, Columbus, Gulfport, Jackson, Laurel, Tupelo and Ruleville have been equipped with salvage covers. All have instituted regular instruction courses and all are making periodical inspections.

Observations, in those departments conducting their second course of instructions, show that there has been a marked improvement in fire department operations. Firemen of all ranks are taking a profound pride in their work and are making a sincere effort to improve their efficiency.

The Fire Service Instructor

The seventh installment of a treatise to aid those responsible for training men in the fire service to develop a systematic type of teaching.

By O. D. ADAMS.
State Director for Vocational Education in Oregon, and Prof., Industrial Education, Oregon State College

and

EDWARD L. BOATRIGHT,
Battalion Chief, Portland, Ore., Fire Department, and Director, Portland Fire College

Chapter V (Continued)
Examination

Fire College

Grade..... Name.....
Div..... Co..... No.....

Firemen's Course

Date.....

Instructions

Read the following very slowly, check carefully.
You will find a review examination in simple arithmetic —continued from last issue—strictly pertaining to the fire service. Follow directions. Each statement and subdivision thereof must be worked out completely. The reverse side of the paper may be used to show completed problems if necessary.

5. Write the number 1931 in Roman numerals.
Ans. .....

6. Add:

(a)	47461	50360	98789
	19527	18852	56432
			98697
			42321

(b) The city of Coldwater bought 2,050 ft. of 1 1-2-inch hose from one company and 12,000 ft. 2½-inch hose from another company. How many feet of hose did the City buy?
(c) How many miles did three truck companies drive in one year if No. 1 drove 5,280 miles; No. 2, 6,732 miles, and No. 3, 4,582 miles?

7. Subtract:

(a)	45760	670900	302004
	23452	405020	200500

(b) A gasoline truck carries 1,002 gallons of gasoline; the driver gave Engine Co. No. 1 102 gallons. How much gasoline was left in the truck?
(c) The speedometer of an apparatus showed 2,800 miles before leaving quarters; after the company returned to quarters, the speedometer showed 2,822 miles. How many miles did the apparatus travel?

8. Multiply and show work:
(a) 52024 x 5060 98789 x 9009 4005 x 200
(b) An engine company carries 1,200 feet of hose, and there are 39 engine companies. How many feet of hose will be carried by all companies?
(c) There are 7 truck companies, and the Department is going to give each truck company 29 tarpaulins. How many tarpaulins will it take to supply the truck companies?

Fire College

Grade .....Name .....
Div. .....Co. ..... No. .....

Firemen's Course

Date.....

WRITTEN EXAMINATION

Instructions

Read carefully each of the 100 statements which follow. Examine the statements and decide with regard to whether the statement is right or wrong. If the statement is right, circle the "R"; if the statement is wrong, circle the "W" Follow instructions exactly.

R W Radiated heat never enters through open windows.
R W Exposure fires may be internal or external.
R W Exposure hazards seldom exist in fireproof buildings.
R W We should use every means to confine a fire to the smallest possible unit or area.
R W The direction and velocity of prevailing winds do not influence the spread of fires.
R W An exposure fire is any blaze that has been confined to the place of its origin.
R W Large fires may spread with such speed that people may be run down in the open.
R W When a fire is properly confined to one section of a building, the danger of conflagration spread is prevented.
R W Fire is one of the most necessary and also one of the most dangerous and destructive of the elements.
R W Fire is not a proper subject for scientific study.
R W Large fires do not tend to create their own draft.
R W Vertical openings inside a building are known as external exposures.
R W Concrete, terra cotta, or brick walls of adequate thickness and rigidity, unrelieved by openings of any kind, constitute one of the best of fire stops.
R W When a fire occurs, excitement and confusion often prevail.
R W Defective chimneys are not a contributing cause of fires.
R W The smaller the fire the more likelihood there is of troublesome wind.
R W Heated gases, smoke and flames may enter adjoining buildings, igniting the contents.
R W No attention need be paid to radiated heat on Iron Fire doors or shutters of adjoining buildings.
R W There are a great number of causes which, either singly or in combination, give rise to exposure fires.
R W Wired glass will withstand heat up to approximately 1,600 degrees Fahrenheit.
R W Partitions never have unprotected openings.

(There were 100 questions in this examination, but only a few are listed here.)

(To be continued)

Atlanta Ends Politics in Department

Following a conference with George L. Swan, Engineer, National Board of Fire Underwriters, the Fire Board of Atlanta, Ga., moved to start a system of competitive tests for appointments and promotions in the Fire Department.

A report was also presented for making changes so that fifty-three men would be cut from the department. The major changes recommended in the Chambers report call for the elimination of two companies with a total personnel of thirty men; elimination of a salvage squad consisting of a Lieutenant, driver, engineer and four hosemen; elimination of the arson squad consisting of two men; elimination of five fire inspectors, and the assignment of all members of the department to inspection work; reduction of pay of six signal system operators from $161.70 a month to $100 a month, and a number of other changes. Mr. Chambers said that the changes would result in a saving of $100,000 a year.

THE ROUND TABLE

For Practical Discussion of Current Fire Department and Fire Management Problems

DUTIES OF CITY ELECTRICIAN AT FIRES

WITH each refinement in the mode of living, the Fire Chief and his department have had to adapt themselves to new means of preventing and fighting fires, brought about by the changed conditions. When electricity came into general use in the home, as well as the factory, it was necessary to assume supervision of these installations to minimize the potential fire hazards. This gave rise in some cities to the position of city electrician.

Where this post has been established, the incumbent has been somewhat of a connecting link between the Fire Department and the bureau in charge of the fire alarm system; otherwise some arrangement exists with the local power company for service at fires.

The problem in full that is treated in this issue appears in the box on this page. In the box on the following page is the question that will be treated in the next issue. Should you have some comments that you would like to add to the next discussion, you are invited to write to the "Round Table Editor," FIRE ENGINEERING, 24 W. 40th Street, New York, N. Y.

Discussion of the Question

Louis Almgren, Chief, San Diego, Cal.: In San Diego the city electrician is called "the electrical inspector." If a fire is caused by faulty electric wiring or fixtures or by violation of the electric ordinance, the electrical inspector is notified and after an investigation he may, and often does, join with the fire marshal in the prosecution of the one responsible for the fire.

In fire prevention inspections by members of the fire department if the inspector finds any violation of the electric ordinance or if any of the electrical equipment is in a dangerous condition he notifies the fire marshal who requests the electric inspector to investigate and have the hazard removed. There is a re-inspection by the fire department to see that the repairs are made.

We are satisfied with the cooperation we receive from the electrical inspector.

George W. Hedden, Commissioner, Buffalo, N. Y.: Buffalo has no city electrician. We have a position known as the "Superintendent of Fire Alarm Telegraph." He is under the Commissioner of Fire and he sees that the fire alarm system, as a whole, is functioning properly. As to his duties at actual fires, he has none, outside of seeing that the apparatus is promptly despatched and the operating room properly handled.

I think the way we are working here gives the department greatest efficiency, due to the fact that our Telegraph Department is really a part of the Fire Department, and as such, comes under the head of the Fire Department. No room is left for controversy.

HERE IS THE PROBLEM

What is the duty of the city electrician at fires?

Is there any other tie-up with the duties of the electrician and the work of the Fire Department?

How would you suggest that better cooperation might be obtained?

C. E. Swanson, Chief, Everett, Wash.: Our electrician is known as "Superintendent of Fire and Police Signals," and comes under the direct supervision of the Chief of the Fire Department. He must be available to cut away any menacing wires and to take care of such duties as may require his special knowledge.

In addition to care and maintenance of the fire alarm system, it is the duty of the Superintendent to instruct all department members insofar as they may come in contact with the system. He is also used in instruction work on our Fire Prevention programs and school educational work.

By reason of the fact that the fire alarm system is the heart of the Fire Department, I believe that to receive the fullest cooperation is absolutely necessary to have this division come directly under the control of the Chief of the Fire Department.

T. P. Sarran, Chief, Brownsville, Tex.: The first and most important duty of the City Electrician at fires is to cut all lines leading to the building on fire. In order to do this with the least possible damage, the electrician must study and know all the buildings, factories and shops supplied with more than one line of electrical power and make notes of. He should know new buildings and their hook-ups.

This same man must look after all outside and inside wiring cables, boxes and machinery since this is a branch of his work.

Better cooperation might be obtained by making him a member of the Fire Department and by impressing upon his mind that his work is as important as putting out fires.

Clarence Dullahant, Chief, Renton, Wash.: The city of Renton has no electrician on its payroll, but the local power company co-operates with us in every way.

As our department is made up of volunteers, we have four electricians from the power company on our roll. One or two of these men are always present at a fire and they take care of all electrical work that is to be done. We carry a complete line of electrician's tools on our truck and there is no delay in getting wires cut if it is necessary.

The Milwaukee Railroad runs through the center of Renton and their line carries two trolley wires, each with 3,000 volts. In case of a fire on this street we have made arrangements with the company to have the electricity cut off so that there can be no danger of men being electrocuted when hose streams come in contact with the wires. We have had very good luck with this method of handling all electrical hazards at a fire.

C. M. Johnson, Chief, Knoxville, Tenn.: The duties of the electrician at fires, in our department, are to cut wires, when necessary, and advise firemen of any personal dangers by electric wires.

He is subject at all times to perform such other duties as may be required of him by the Chief of the Department.

I have no suggestion to offer for better cooperation under this system.

J. G. Sarran, Chief, San Antonio, Tex.: Our city electrician does not attend fires. A man from the local Public Service Company responds to all alarms and takes care of gas and elec-

trical connections. Our city electrician is also superintendent of fire alarm which is operated separately from the Fire Department. He has charge of maintenance and up-keep of the fire alarm system.

There is full and complete cooperation between the Fire Department and the fire alarm department, which is supervised by our city electrician.

Rod Gambrell, Chief, Dallas, Tex.: Our city electrician does not answer alarms in our city. The Dallas Power & Light Company have men assigned to answer all alarms. They have a signal system in their quarters and answer the same as this department. Two linemen from the alarm system answer on second or greater alarms.

We are lucky to have the best cooperation from this company and the service we receive could not be improved upon.

James J. Evans, Chief, Everett, Mass.: The position of city electrician and superintendent of fire alarm is combined into one. He has full charge of the maintenance of the police and fire signal system and maintains an office at City Hall through which all permits for electric installations, etc., are issued. His department supervises all electrical work in our city and does all electrical work in our municipal buildings.

An inspector from his department responds at all fires to ascertain whether any wiring has been damaged or if the fire has been caused by defective wiring. In these buildings the meters are sealed and cannot be used until a thorough inspection has been made and all wiring approved by the inspector. This inspector reports to the fire officer in charge of the fire. On multiple alarms two linemen with emergency wagons respond and report to the officer in charge. Their work is to cut any wires, shut off electricity and place flood lights or light up the fire grounds.

The city electrician cooperates with our fire prevention bureau in their work and I do not believe it is possible to get greater cooperation.

J. F. Healy, Chief, Denver, Col.: The city electrician has no active duties at fires. However, wherever disconnections of service are made during a fire, a permit and release must be obtained from the city electrician before such service can be connected.

The Fire Department maintains a fire alarm line department which takes care of the fire alarm equipment, lines, poles, boxes, etc. In addition to these duties, a fire alarm repair truck and one electrician is constantly on duty twenty-four hours per day and this truck and man respond to all alarms, excepting those where the nature of the fire is known and where the services of an electrician is not needed. It is this man's duty to cut wires, disconnect the service, etc., at fires where such action is necessary. Whenever such action is taken, all loops, main lines, etc., are tagged and left disconnected until released for repairs or resumption of service and this release must be made by the chief city electrician or one of his deputies. The chief electrical inspectors, his deputies and the members of the fire department line division are all licensed electricians.

The department enjoys a splendid cooperative service with its electrical department, both at fires and in receiving the necessary support towards effecting electrical corrections which are found in the course of inspections.

In addition to the above services, the Public Service Company of Colorado which supplies the city with natural gas and electrical service, maintains two trouble cars, one a gas crew and the other an electric crew, which receive notification of all fires and respond to same. These crews cooperate with the fire department line division and the city electrical staff at all fires. Their services are most valuable.

H. G. Putnam, Chief, Winona, Minn.: A city electrician should equip himself so as to be able to assist at any fire where it is necessary to cut power lines, run wires or any kind of work requiring the knowledge of an electrician.

He should be close to the department at all times and be able and willing to assist them with all electrical troubles. Our city electrician has an office next to mine in our city building, and we discuss everything pertaining to his line of work. I believe, there could be no better cooperation obtained as our electrician is one hundred per cent efficient and willing.

E. Seymour, Chief, Plattsburgh, N. Y.: The city has no position known as a city electrician. The local gas and electric company maintains an emergency squad to answer all fire calls in the fire district, day or night. They also answer fire calls in the residental section of the city by phone call. The city Fire Department has installed at the gas and electric plant one of the tapper bells of the fire alarm system, and they receive the alarm for fire at the same time that the call is received at the Fire Station. This arrangement has proven very satisfactory.

Jack M. Byers, Chief, Hagerstown, Md.: The duty of the city electrician is to cut all power off in the vicinity of the fire. The city electrician in our city does not answer an alarm, I believe however, better cooperation could be afforded the Fire Department, if the city electrician was detailed to answer all alarms.

James C. Sullivan, Chief, Lowell, Mass.: We do not have an official designated as city electrician. We have, however, an inspector of wiring, whose duties are to inspect all wiring installed in the city with the exception of our alarm system. This is operated and maintained by the Wire Division in our own department. There are men from the Wire Division present at all fires over a first alarm. At second and general alarms I have always noticed that the city inspector of wires was present. Whether or not this is one of his duties I cannot say, but I presume it is. I have never delved into his work as we have a very efficient superintendent and alarm crew in our own department.

The duties of the electrician and the work of the Fire Department have no other tie-up. When I have been in doubt as to the cause of fires, where I thought the wiring was involved. I have sought his opinion.

The city wire insepctor, the Lowell Electric Light Corporation and the Line Department of the Lowell Police Department cooperate with me to the fullest extent. At all serious fires in the city they have always been on hand to offer any assistance possible.

Roy Elliott, Chief, Medford, Ore.: In my opinion the city electrician should attend all fires. His first duty at the scene should be to disconnect the service or such parts of service in large buildings as may be advisable, and if necessary cut the lead-in wires entering the building for the protection of all parties. During the investigation he should assist in determining the cause of the fire particularly from an electrical standpoint.

It is my opinion that closer cooperation between the two departments might be affected by making the city electrician a member of the department and supply him with adequate equipment and tools, particularly a siren for his car.

Fred Reif, Chief, Prescott, Ariz.: We have no city electrician in our department. This is a part paid and volunteer department. We have men from the power company and electric shops in the department who take care of the wires at fires. They also report all hazards they find. We have had excellent results in having them corrected.

We have a fire department electrician who takes care of the alarm system, and approves or condemns every electrical job completed in the city.

George Van Zant, Chief, New Castle, Ind.: The city electrician is always ready and willing to assist when we call for him, but I believe that a better plan is to have him answer all second alarms without being called. In most cases he would be able to advise the firemen of the voltage on the most wires near the fire, and possibly "kill" the ones which really present great danger to our men.

A good city electrician is a valuable man to any fire department and his services should be more appreciated.

Fred J. Washburn, Chief, Auburn, N. Y.: There is no one acting as city electrician in Auburn. The Fire Department electrician responds to all fire alarms and assists

HERE IS THE PROBLEM FOR THE NEXT ISSUE

How does your department keep the batteries on fire apparatus in proper condition?

Are trickle chargers employed, or are the batteries removed and charged by private battery stations, or by department repair shop?

On the average, how often do you find it necessary to charge these batteries?

in cutting high power wires or any wires interfereing with the work of the firemen. Where suspicion is held that electric wiring or other electric appliances may have caused the fire the experience of the electrician is valuable in checking the origin.

D. A. Kincade, Chief, Independence, Mo.: The city electrician's duty is to take care of all live wires that are down. I believe, that he should respond to all fire alarms.

Albert Chamberlain, Chief, Hillside, N. J.: We do not have any city electrician in Hillside. All inspections are taken care of by the Underwriters' inspector assigned to this district. The Utility Company's crew responds whenever a fire is reported in their district to assist if necessary.

Peter Beckerle, Chief, Danbury, Conn.: The city electrician has no duties in this Fire Department. This department has a electrician to look after the fire alarm system. His duty is to answer all alarms on his shift and to answer for duty when on the off shift on any second alarms or when called in by the chief.

C. S. Dailey, Chief, Bemidji, Minn.: Our city electrician attends all fires and cuts dangerous live wires that would endanger firemen fighting the fires.

Without the assistance of the city electricians at a fire where several lines of live wires are down firemen would be greatly hindered from properly fighting the fire.

Close cooperation between the Fire Department and the city electrician affords the public greater protection of life and property.

J. R. Eldridge, Chief, Johnson City, N. Y.: The superintendent of fire alarm and his associates is our city electrician.

We find this works very satisfactory to all concerned.

H. A. Whitney, Acting Chief, Adrian, Mich.: It is very essential that the city electrician be on hand at all fires, and especialy so when high tension lines are in the fire area. Even a 110-volt line under proper conditions will tie a man up so that he cannot get away. I speak from personal experience.

If city electrician cannot answer alarm, his assistant should respond instead.

For better cooperation, I would suggest that city electrician answer all alarms, whether day or night, for the express purpose of looking after all electrical hazards.

E. D. Kenyon, Chief, Turtle Creek, Pa.: It is the duty of the city electrician to cut electric light wires for the protection of firemen while fighting fires.

All members of our department work together and better cooperation could not be desired.

H. M. Brightbill, Chief, Elkins, W. Va.: The West Penn Electric Company furnishes the electrical equipment necessary at a fire which is carried on one of our trucks. An electrician reports to the Chief of Fire Department at all fires and cooperates with him in whatever manner possible. The electrician advises the Chief regarding electrical lines which might be located in the fire district and orders current cut off if danger exists. He does this work himself or either directs his own men as to what should be done.

Upon request, this company also sends a man to lecture to fire department members.

James M. Casey, Chief, Cambridge, Mass.: It is the duty of the city electrician to look after all electric lines for the protection of firemen and the service.

Fire alarm boxes are also installed by the city electrician.

J. F. Noll, Chief, Harrisonburg, Va.: City electricians attend all fires to see that firemen are not endangered while operating on the street side of a fire.

Electricians also cooperate with firemen on the inside of buildings on fire to see that service switches are pulled or fuses removed.

C. Craig, Chief, Owosso, Mich.: The city electrician is required to inspect all electric wiring and maintain boulevard lights. His duty also includes servicing fire alarm system. Present method of handling these tasks is working out very satisfactorily.

Geo. A. Smith, Chief, Pottsville, Pa.: At Pottsville, the duties of the city electrician is part of the Fire Chief's job. At fires I send in taps for fire out or more help.

I charge the batteries and test out the fire alarm circuits every morning. At noon of each day the fire alarm boxes are tested, a box on a different circuit being pulled each day. I maintain boxes, switchboard and batteries in proper repair. Whenever there is line trouble or a change of wires to be made, a lineman is hired to help with this work.

Wm. Briggs, Chief, Shelbyville, Ind.: The Fire Department electrician cuts electric service wires when required at scene of fire or has current removed from the lines. It is his duty to maintain the fire alarm system and police traffic signals.

Chief Bowker of Passaic, N. J., Resigns

Chief Reginald H. Bowker of Passaic, N. J., concluded forty-nine years of active service on December 31 and under the law of the State of New Jersey he retired involuntarily at the age limit of 65 years. His retirement provoked comment of the most eulogistic character from city officials. Temporarily, Deputy Chief Walter S. Gibson is the Acting Chief.

Ex-Chief Reginald H. Bowker

Chief Bowker served the City of Passaic for twenty-one years as Chief of both the volunteer and the paid departments. Admired for his rugged honesty and his high sense of duty, he ruled the Passaic department with a firm but a fair hand. He was on duty twenty-four hours a day, but when the two-platoon law went into effect immediately after the conclusion of the World War he had it changed from a 10 and 14 hour system of tours to a straight 24 hours on and 24 hours off, with leaves during the day for meals.

Chief Bowker was a strong advocate of standardization of apparatus. He was an arch enemy of the firebug and pursued the principle that arson suspects should be made to prove their innocence instead of the public authorities establishing their guilt. Chief Bowker came from the Passaic Water Department and as a young man he worked at the designing and laying of the city's water supply system.

Deputy Chief Walter S. Gibson will serve as Acting Chief until a permanent Chief is named.

Ohio Holds Fire School at University

More than three hundred persons attended the third annual Ohio Fire School held at the Ohio State University, Columbus, Ohio, in charge of Harvey Walker.

Instruction in evolutions was given by Chief Robert Leedom and members of the Portsmouth Fire Department. T. Z. Franklin of the Automobile Insurance Company gave a demonstration of home and factory fire hazards. Chief James E. Granger, Cleveland, spoke on "Ventilation."

Dr. Jesse E. Day of the Department of Chemistry gave a lecture and demonstration on "Chemistry and Fire Fighting —Common Chemicals and Their Properties." In addition, the following talks were given:

Sprinkler equipment, by J. R. Hamilton, Automatic Sprinkler Corporation of America; "Fire Prevention and Protection and Its Relation to Loss Adjustment," by Allen C. Guy, Western Adjustment and Inspection Company; "Fire Department Hydraulics," by H. M. Havens, Seagrave Corporation; "Increase in Life and Fire Hazards Through Careless Use of Electrical Energy," by F. O. Evertz, Ohio Inspection Bureau; "Fire Department Pumping Apparatus," by Prof. Karl W. Stinson of the University; "Arson," by E. L. Donovan, and a talk by T. Alfred Fleming, both of the National Board of Fire Underwriters.

The following men and companies participated in demonstrations: Fyr-Fyter Company, Dayton; E. J. Ader and members of the Cincinnati Underwriters' Salvage Corps; Marshall H. C. Williams, Drill-master, Cincinnati; Chief C. A. Delaney, Lakewood; Capt. Ed. Welch, Columbus.

R. B. Criswell.

Questions and Answers

NOTE—Readers are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified

Calculating Friction Loss

To the Editor:

I would like to know how to figure and find the friction losses in 2½-inch and 1½-inch hose. C. L. F.

Answer: The method of finding the friction loss in fire hose is as follows:

Friction loss per 100 feet of 2½-inch hose = 2 × Q × Q + Q, where "Q" is the flow in the hose measured in hundreds of gallons per minute: that is, if the flow were 320 gallons per minute, then Q would be 320 divided by 100, or 3.2.

Bear in mind the formula gives the friction loss in 100 feet of hose—and 2½-inch hose only.

Problem 1. What is the friction loss in 100 feet of 2½-inch hose carrying 300 gallons per minute?

Solution: The formula gives the answer directly, for the length is 100 feet, and the diameter 2½-inch. Friction = 2 × 3 × 3 + 3, or 21 pounds. (The figure "3" in the above solution is the flow, 300 gallons, divided by 100, for Q is measured in hundreds of gallons.)

Problem 2. What is the friction loss in 300 feet of 2½-inch hose carrying 200 gallons per minute?

Solution: First find the friction loss in 100 feet. Friction loss = 2 × 2 × 2 + 2, or 10 pounds. This is the friction loss in 100 feet. The friction loss in 300 feet will be just 3 times as much, or 3 × 10, or 30 pounds.

It will be noted above that the friction formula gave results only for 2½-inch hose; that is it was employed only in problems where the hose layout consisted of a single 2½-inch line. The formula is for 2½-inch hose and can be used for no other size.

If it is desired to find the friction loss in other sizes of hose than 2½-inch the lines must first be reduced to the equivalent of a single line of 2½-inch hose from the standpoint of friction by the use of certain factors. These factors are shown in the table following.

These factors are based on the relation of the friction losses in different sized hose lines to each other. For instance, the factor for changing 3-inch hose to 2½-inch is 2.6. This figure merely means that 2½-inch hose has 2.6 times as much friction loss as 3-inch hose, the flow being the same.

To change the 3-inch hose to 2½-inch, we divide by the factor 2.6, and the quotient is the length of 2½-inch hose which has the same friction loss as the 3-inch line being considered.

FACTORS FOR SINGLE LINES

Diameter	Factor
¾-inch chemical hose	0.0029
1-inch chemical hose	0.011
1½-inch rubber lined hose	0.074
1¾-inch linen hose	0.0157
1½-inch linen hose	0.039
2-inch linen hose	0.16
2½-inch linen hose	0.47
2¾-inch rubber lined hose	1.66
3-inch rubber lined hose	2.6
3½-inch rubber lined hose	5.8
4-inch rubber lined hose	11.0
4½-inch rubber lined hose	19.5
5-inch rubber lined hose	32.0

"Oldest" Pumping Engine

To the Editor:

Rescue Hose Co. No. 1 of Greencastle, Pa., owns what it claims by tradition to be the oldest pumper or pumping engine in the United States. This engine when purchased by the borough had solid wooden wheels and no fifth wheel—the apparatus had to be lifted when turning. However, spoke wheels and fifth wheel were added later.

The Rescue Hose Company has participated with this engine in the last few "Firemen's Parades" held in Washington, D. C., on Labor Day, and have won silver cups. We have been asked to furnish an affidavit as to its age and the only authentic reason we have for stating its age has been the figure "1741" painted on the side.

We wonder if you could and would be willing to state from examination of the photograph whether this engine is correctly dated 1741? K. C. G.

Answer: A careful survey was made of the early history of fire engines and it is our opinion that the hand engine illustrated was built between 1740 and 1744. It is of a "Newsham" design. A sketch of engines built around 1742 indicates that they had wooden wheels and no fifth wheel. Furthermore, the design closely follows that of the engine in your department.

The early fire engines built in America, which were not constructed until several years later, were distinctly different in arrangement of equipment. I do not believe there should be any question about the genuineness of your machine, nor is there any reason to believe that the date, 1741, is other than correct. So far as is known, this is the oldest machine of this type in this country.

Old Type of Hand Engine

Use of Factor "K"

To the Editor:

I have noticed by your calculations that you always reduce a siamese line to a single 2½-inch line. The question arises: is it worth while to use the "K" for each size nozzle in regard to a single, 3-inch or 3½-inch and all siamese connections in the layout of lines.

I have all valves for "K" from ⅛-inch to 2⅝-inch on single 2½-inch lines and also all larger lines and siamese as far as 3-inch, besides all the factors for reducing any layout to a single 2½-inch line. Kindly inform me whether I should reduce all lines, or take the "K" for the nozzle representing the layout, as the latter is quicker and less apt to run into an error.

K. W.

Answer: The best way of handling problems involving the values of "K" is to employ the value for the particular size

nozzle on the size hose given, provided you can remember these values.

The only reason for reducing layouts to single lines is to avoid the necessity of remembering too many values of "K."

Shepard Chief of Macon, Ga.

Volley C. Shepard has been appointed Chief of the Macon, Ga., Fire Department to succeed Chief H. J. Williams who retired at his own request. He joined the department on November 1, 1906 and less than a year later was made a Lieutenant. In October, 1916, he was promoted to Captain; Second Assistant Chief, February, 1926; First Assistant Chief, January 1, 1927.

Chief V. C. Shepard

Chief Shepard is fifty-one years old. He has seen the department grow from five stations and a personnel of sixty-five men in 1906 to six stations with ten companies and ninety-four men.

Chief Shepard is most anxious to have a training tower built in his city to improve the efficiency of the department. He has conferred with the Atlanta Fire Department relative to the establishment of a course of training.

System Crippled

The entire fire alarm system of Hallowell, Me., was crippled by a gasoline explosion in the rear of the fire station. Before much damage was done to the fire station, the fire apparatus was removed. The family of the department driver narrowly escaped with their lives as they fled from the apartment on the second floor of the building. Brick walls of the station prevented the spread of fire to other buildings.

Chief Ringer Resigns to Take Effect April 26

Chief Charles Ringer, of the Minneapolis, Minn., Fire Department, has submitted his resignation to the City Council to take effect April 26. The resignation was accepted without comment by the Council on December 23, 1932.

In commenting editorially on the subject, the Minneapolis *Tribune* says in part:

"Minneapolis owes much to Mr. Ringer for that remarkable record of service. It is to him, more than to any other individual, that credit must go for an efficient fire department which has few equals in the country. That he does not see fit, in view of the Council's continued opposition, to remain in office another year and round out an even half century of service, is entirely understandable. . . ."

Municipal Signal Group Meet

A meeting of the New England Municipal Signal Association was held in the Hotel Bancroft, Worcester, Mass., on December 14.

E. W. Davis, Chief Engineer of the Simplex Wire and Cable Company, spoke on "The Life History of Lead Alloys Used for Covering Cables."

There was a round table discussion on the revision of the National Fire Protection Association's rules for the construction and maintenance of municipal fire alarm systems.

The following day a visit was made to the factory of the Rockwood Sprinkler Company where a demonstration was given of the new Rockwood "Sprinklarm" and the Gamewell Sprinkler Watchman. A new high and low air supervisory panel and regulator were shown for use in conjunction with the Gamewell Watchman hook-up to a dry pipe sprinkler system.

In the afternoon there was a demonstration at the Hotel Bancroft by the Sampson Electric Company, showing a new speech recording apparatus for police and fire use.

Chief James S. Warnock, of Swampscott, President of the association, presided. The next meeting will be held in Bridgeport, Conn., in March. HARRY BELKNAP.

Directors, I. A. F. C., To Meet in New York City January 20

The Annual Meeting of the Board of Directors of the International Association of Fire Chiefs has been called by President Richard L. Smith for Friday, January 20, at 10 A.M., at the Hotel Edison, 228 West 47th Street, New York City.

Two Buffalo, N. Y., Fire-Fighters Killed

While fighting a fire in a two-story frame building, Capt. George F. Weitz and Fireman Rudolf O. Bethge, both members of the Buffalo, N. Y., Fire Department, were killed when the second floor of the building gave way. The Rescue Squad and other members of the department made heroic efforts to save the men, but when the debris was cleared away, it was found that both men were instantly killed. Capt. Weitz was in the service for twenty-two years and the fireman had seen ten years of service.

New Hose Treatment Announced

The Manhattan Rubber Manufacturing Division, of Passaic, N. J., has just issued the following statement regarding the development of a new method of treating fire hose to protect it against moisture and mildew:

"Special chemicals with radio-active properties are now being used for treating fire hose for the purpose of rendering it mildew-proof and moisture repellent, by The Manhattan Rubber Manufacturing Division, of Passaic, N. J.

"The treatment consists of the introduction of certain salts of rare earth metals into the fabric of the hose. These salts are radio-active and permanently prevent the formation or growth of mildew colonies and, in addition, render the hose fabric rot-proof and moisture repellent for its entire life.

"The use of treated fire hose has the advantages of doing away with the need for careful drying after use.

"The New Manhattan Treated Fire Hose is furnished in 2½-inch double jacket size in three grades—Condex, Fultex, and Vitex."

Deputy Chief Flood, New York, Dead

John J. Flood, Deputy Chief of the Third Division of the New York Fire Department and in command of the high hazard midtown section of Manhattan, died in a Brooklyn hospital on December 20, where he had been a patient for two months as the result of a cardiac trouble. He would have celebrated his forty-ninth birthday on Christmas.

He was appointed a fireman in 1905 and his subsequent posts were largely in the downtown sections of Manhattan. He was promoted to Deputy Chief on December 24, 1930.

Chief Flood is survived by his widow, two sons, a daughter, a sister and a brother now in Paris.

Newly Elected Chiefs

The following have been elected to head the Fire Departments in their respective municipalities:

West Point, Ia.—Ed. Kaltefleiter
Centerville, N. Y.—LeRoy Van Vlierden
Thorndale, Tex.—E. M. Chandler
De Leon, Tex.—O. M. Buchan
Beach Haven, N. J.—Easton Sprague
Denville, N. J.—William Keefe
Wood-Ridge, N. J.—William G. Meas
Bandon, Ore.—C. S. Woomer
Tama, Ia.—Albert Benda
Victor, Ia.—Edward Cahill
Whitehouse Station, N. J.—J. F. Roche
Danville, Pa.—Eugene Doran
Anamosa, Ia.—James Porter
Brookville, Pa.—R. S. Wensel
Hudson, N. Y.—John Harp
Hamburg, N. J.—Herbert R. Moyse
Ransomville, N. Y.—Archie Truesdale
Prospect Park, N. J.—Everett Ver Hage
Lawrence, N. Y.—Edward Erickson
Waynesburg, Pa.—Frank L. Hoover
Glenville, Conn.—William Angeley
Ridgefield, N. J.—L. D. Romano
Gasport, N. Y.—Robert N. Maynard
Hall, N. Y.—T. J. Prendergast
Danville, Pa.—Eugene Doran
Ford City, Pa.—M. C. Davis
Troy, Ill.—Charles E. Peters
Lavallette, N. J.—Charles Brackman
Sanborn, N. Y.—Hubert R. Haseley
Monaca, Pa.—George E. Dietrich
River Vale, N. J.—Charles Arzt
Wallowa, Ore.—U. A. McCrae
Port Norris, N. J.—John C. Hollinger
Camden, N. Y.—Pearl Fox

WHAT'S BURNING

THE following list includes fires of $25,000 loss and over in the United States and Canada, for the month of December, 1932. These figures, compiled from telegraphic reports are based on estimates made at the time, and are subject to later investigation and consequent revision. Taken as a whole, however, they are an approximately correct view of the losses incurred. The figures represent loss in thousands of dollars.

Month Ending December 30	Loss in Thousands of Dollars
Greenwich, Conn.—Dwelling of Ed. Fogg, Palmess Hill sec	65
Brockton, Mass.—St. Paul's Episcopal Church damaged	50
Sparta, Tenn.—White County high school bldg	65
Corinth, Miss.—Graham dept. store, adj. property	35
Johnsonburg, Pa.—St. Charles Hotel and adj. property	25
Lansdale, Pa.—Church of Messiah, Gwynedd Township	30
Wausau, Wis.—Bldg. of Wausau Cleaners and Dyers	25
Milton, Wis.—Seventh Day Baptist Church destroyed	45
Hoosick Falls, N. Y.—Barns on game preserve of Hans Ehmler	35
Colwyn, Pa.—Barn of James Smith destroyed	25
Mountain View, Cal.—Warehouse and adj. property	25
Danvers, Mass.—Two barns on M. P. Prince estate destroyed	25
Gamoca, W. Va.—Colliery Company store damaged	25
Mingo Junction, Ohio—Six apartment bldgs. damaged	25
Petersburg, Va.—Excursion steamer "Islander" destroyed	25
Cedar Falls, Iowa—Building and stock of Wyth-Lamb Shoe Co	25
Chicago, Ill.—Hansen Co. machinery factory damaged	25
Boston, Mass.—Two schooners destroyed	45
Mammoth Spring, Ark.—Hotel Nettleton destroyed	30
Lee, Mass.—Paper plant of Easton-Dikeman Co. destroyed	200
Lynchburg, Va.—Business bldg. at 818 Main St	25
Greenville, S. Car.—Cagle building on Main St	25
Chicoutimi, Que.—Gaudreau and Gagnon block destroyed	80
Sycamore, Ill.—Borden milk plant and Sycamore Preserve Wks	150
Sayre, Pa.—Business bldg. at 117 Lockhart St	35
Burlington, Vt.—Property of T. Russell Brown at Malletts Bay	65
Lancaster, Pa.—B. S. Miller factory damaged	25
Upper Narragansett Bay, R. I.—Edgewood home of D. W. Flint	65
Monterey, Cal.—Fishing boat "Virginia" Capt. Sam Sellito owner	30
Gastonia, N. C.—Ideal Theatre and adj. property	75
Yarbro, Ark.—Property of Mitchell & Bollard, 4 mi. north	45
Ottumwa, Iowa—J. C. Penney Co. bldg. damaged	80
Mullins, S. C.—Whse. of Buchanan Tobacco Co. destroyed	25
Hamilton, Ont.—Bldg. of Wilkinson & Kompass damaged	150
Clemson College, S. C.—Presbyterian Church destroyed	45
Massent, N. Y.—Hatfield House hotel destroyed	40
Cambridge, Ohio—Gillis-Ferguson garage and 28 cars	45
Broad Channel, L. I., N. Y.—Queens Capital Hotel, adj. dwellings	45
North Salem, Ore.—Plant of Producers Co-operative Packing Co	150
Elizabethtown, Ky.—Hardin County Court House damaged	25
Wellsville, N. Y.—Whse. of Wellsville Upholstering Co	45
Morrisville, N. Y.—Farm bldgs. of H. C. Wood, two mi. west	25
Memphis, Tenn.—Pickery of Memphis Cotton Sales Co	65
Madison, Ind.—Steamer "Island Maid" and towboat at Madison Ways	160
Cumberland, R. I.—Convent of St. Patrick's R. C. Church	25
Wooster, Ohio—Bldgs. and stock on Wooster Farms destroyed	25
Stuart, Va.—Central Academy bldg., 5 mi. from here	25
Cotton Plant, Ark.—Whse. of Southwestern Veneer Co	25
Northport, L. I., N. Y.—Dwelling of Mrs. Wm. M. Chesebrough	80
Big Prairie, Ohio—Castle Inn dancehall and restaurant	25
Eatonville, Wash.—Plant of Eatonville Lumber Co	400
Portland, Ore.—Property occupied by Davis Elec. Co	25
Springfield, Ill.—Wolff store and adj. apartment property	25
Fergus Falls, Minn.—Two buildings destroyed	80
Verona Springs, N. Y.—Bldgs. on Satkicwicz farm, Mitchell estate, owners	25
Norfolk, Conn.—Factory bldg. of Gabbey Molle Fur Co	80
Waterbury, Conn.—Garage, West Main & State Sts	70
Watervliet, N. Y.—Coal yard of John Trautwein Co	25
Edmonton, Alta.—Plant of Wayward Lumber Co	25
Fayetteville, Ark.—Several business establishments	160
St. Louis, Mo.—Crystal Lake Golf Club on Bopp Rd	25
St. Lambert, Que.—Business property at 193-199 Victoria Ave	25
Glace Bay, Que.—Metropolitan store damaged	65
Dallas, Tex.—Bldg. of Roos-Freedman-Shayn Co	125
Oceanport, N. J.—Residence of Gerald Meyer destroyed	25
Broken Bow, Okla.—Choctaw Lumber Co. plant destroyed	100
Richland, Ga.—Richland High school bldg. destroyed	35
Dalmatia, Pa.—Independence School destroyed	30
Dubuque, Iowa—Widwest Grocery Co. plant destroyed	50
Hinckley, Minn.—Business building destroyed	35
Leominster, Mass.—DuPont Viscoloid Co. bldg. destroyed	30
Holcomb, N. Y.—Hotel, post office and other business property	50
Somersworth, N. H.—Chandler School destroyed	25
Berthold, N. Dak.—Several business establishments	25
Seattle, Wash.—Plant of Puget Sound Lumber Mfg. Co	65
Greenville, Ohio—Poultry plant of Sherman-White Co	45
Greenville, Miss.—Cotton seed whse. of International Vegetable Co	65
Charlotte, N. C.—Interior of American Trust Co. Bldg	80
Fair Haven, N. J.—Mennen residence damaged	25
Zwolle, La.—Business property	50
Owosso, Mich.—Plant of Burwood Wood Products Corp., adj. bldgs.	45
Beatrice, Neb.—Fair store destroyed	125
Ravenna, Ohio—Floyd block destroyed, other property damaged	75
Morrilton, Ark.—Three business bldgs. destroyed	25
Greenwich, Conn.—Residence of Mrs. A. Jeretski damaged	25
Scottsville, Ky.—Seven river boats owned by Williams Bros	125
Libertyville, Ill.—Stable on Hawthorne Farms estate	80
Felicity, Ohio—Several business establishments	45
Chicago, Ill.—Whse. owned by Western Cold Storage Co	25
Oakland, Cal.—Dance hall at 1933 Broadway, destroyed	80
Elizabethtown, N. Y.—Business property owned by Mrs. S. Cautin	45
Six Points, Ariz.—Cooper State Creamery destroyed	70
Tweed, Ont.—Plant of Gordon Steel Works damaged	80
Howie, Ark.—Mills furniture store destroyed	25
Colquitt, Ga.—Miller County high school bldg. destroyed	25
Watervliet, N. Y.—Residence of J. S. Horton, Boght Rd	25
Troy, N. H.—G. W. Platts box factory destroyed	25
Harrodsburg, Ky.—Louisville store and adj. property	80
Memphis, Tenn.—Whse. of Memphis Cottonseed Products Co	50
Greensburg, Ky.—Several business establishments destroyed	30
Charleston, W. Va.—Whse. of Farris Bros. Fruit Co	25
Charlotte, N. C.—Cutter bldg. damaged	45
New York, N. Y.—Bath house and several concessions, Coney Island	150
Montesano, Wash.—Lumber plant of Schafer Bros. damaged	125
Chicago, Ill.—Business property on Milwaukee and Lawrence Avenues	25
Ankeny, Iowa—First Congregational Church destroyed	25
Baie Saint Paul, Que.—Marist Brothers College destroyed	35
M'Gehee, Ark.—Business property owned by McGee estate	45
Ashland, Wis.—Clothing store of J. B. McDonald, damaged	40
Philadelphia, Pa.—Paint plant of Thomson Wood Finish Co	25
Edgewater, N. J.—Cooper dyeing establishment	25
Shippingsburg, Pa.—Bldg. occupied by Murphy Dept. store	80
Bloomfield, N. J.—Dwelling of Liborio Maglaracina, adj. property	25
Pontotoc, Miss.—Plant of Pontotoc Cotton Oil Mill Co	45
Catasaqua, Pa.—Six Race Street dwellings destroyed	45
Gary, Ind.—Whse. of J. E. Burke, destroyed	80
Trome, Pa.—Plant of Stine Foundry & Machine Co. damaged	125
Hodgenville, Ky.—Masonic Temple Theatre bldg. destroyed	35
Portland, Me.—Blake Rounds Supply Co. plant damaged	65
Warsaw, Ky.—Arcade block damaged	80
Lakewood, R. I.—Property occupied by Lakewood Hay & Grain Co.	25
Belle Haven, Conn.—Residence of Mrs. Adams-Kelly, damaged	25
Toledo, Ohio—Northern apartments damaged	80
E. Chicago, Ind.—Warehouse on Michigan Avenue	25
Chicago, Ill.—Elevator of Stratton Grain Co. destroyed	500
Bay City, Mich.—Wenonah theatre damaged	25
Dallas, Tex.—Business property owned by Leonard Eppstein	45
Duson, La.—Hospital owned by Dr. U. J. Arreteig, destroyed	40
Waterville, Me.—Property at 6-10 Common St. owned by S. Barron	50
Waterloo, Iowa—Waterloo theatre damaged	30
Shelton, Mich.—Factory occupied by Huntington Piano Co	65
Cincinnati, Ohio—R. A. Rasche Co. bldg. damaged	100
Martinsburg, W. Va.—Thrasher store, adj. property	45
New Haven, Conn.—Business bldg. at 262 York St	25
Plymouth, Mich.—Church of Our Lady of Good Counsel	50
Cohocton, N. Y.—Warner Hotel destroyed	25
Simcoe, Ont.—Canadian Pacific Railway station destroyed	80
Chicago, Ill.—Property occupied by Getz Poultry Co., Curtis St	25
Joliet, Ill.—Plant of Lomber Candy Co. damaged	25
Albany, N. Y.—Shaker Ridge Country Club, destroyed	40
Lebanon, Ohio—Lebanon Opera House destroyed	35
Van Wert, Ohio—Property on Marsh Foundation Farm	45
Wheeling, W. Va.—Syrian Catholic Church destroyed	65
Oakland, Cal.—Whse. of W. H. Barrish Storage Co	65
Peoria, Ill.—Kresge store destroyed	180

Correction of Fire Loss

In the "What's Burning" column of the December issue was listed a fire in dairy buildings of S. A. Werthiem at Asbury Park, N. J. This was incorrectly credited to the city as the farm is located four miles outside of the city limits.

Grain Elevator in Chicago Destroyed

A six-story grain elevator containing 1,350,000 bushels of wheat in the Santa Fe Railroad switch yards, Chicago, was destroyed by a spectacular explosion and fire in which one worker was killed and nine persons were burned. Flames

Minutes Saved This Chicago Fire Boat

By the narrow margin of three minutes, the Fire Tug "Graeme Stewart" of the Chicago Fire Department, escaped from the path of a falling grain tower which collapsed as the result of a fire at the Santa Fe Railroad yards. The boat had stuck in the mud bank and another tug came to the rescue as the tower began to take a list.

spread to an adjoining elevator in the yards but firemen were able to extinguish this blaze without much loss. Forty fire engines and two fire tugs responded to the alarms.

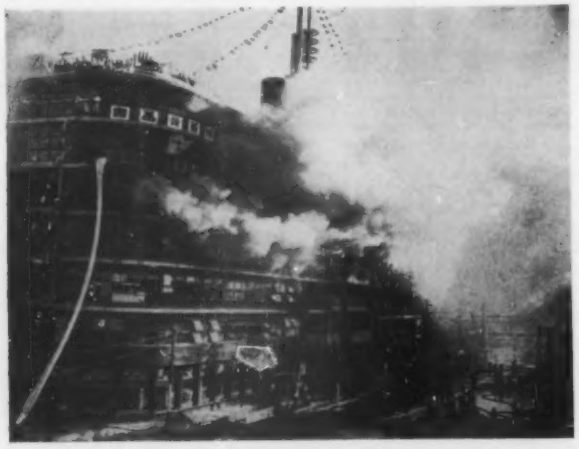
The man killed was blown from an upper story of the elevator by the explosion. The explosion blew the roof off a moment after the fire began.

Fire Marshal Michael J. Corrigan directed the work of the firemen. Many of the engines were mired in the mud near the elevators and had to be pulled out by railroad derricks. Only three hydrants were available and there was difficulty in pumping water from the river.

Men on the fire boat Graeme Stewart had a narrow escape when an eighty-foot brick tower adjoining the elevator and standing on the river bank began to collapse. The tug tried to back away but was caught in the mud of the river bed. The boat was pulled away three minutes before the tower collapsed into the river.

Eight Die in Tokyo Store Fire

Eight persons were killed and more than one hundred others were injured when fire swept through the upper five stories of the seven-story Shirokiya department store in Tokyo, Japan. The fire was caused by Christmas tree lights. Two airplanes dropped rope ladders to the roof of the building thus enabling several trapped persons to descend safely. The store, a new structure of concrete and steel, is situated in the heart of the capital's shopping district.



Spectacular Fire in the Tokyo Department Store

At the left is seen one of the canvas chutes by which many were rescued. Note the absence of hose streams outside the building. The fire was mainly fought from the inside.

Although officially Japan does not observe Christmas, it has become a popular gift-giving holiday.

Box 52 Enjoys Holiday Party

The Box 52 Association, Inc., of Boston, Mass., held a dinner and Christmas party on the evening of December 21 at the Chamber of Commerce, Boston, Mass.

Several reels of fire pictures were shown through the courtesy of the National Fire Protection Association. A large greeting card was prepared and signed by all those present to be sent to P. Hildreth Parker, head of the association, who is ill at his home in Belmont.

HARRY BELKNAP.

Rhode Island Chiefs' Club Meets

George O. Mansfield, Assistant State Fire Marshal of Massachusetts, gave an illustrated lecture on the work of his department, at a meeting of the Fire Chiefs' Club of Rhode Island. His subject was "Fire Bugs." He showed and explained the various types of persons who engage in arson and explained how the evidence is gathered and cases constructed for presentation to the courts.

Chief Frank Charlesworth, of Providence, R. I., President of the club, called attention to the increasing hazards of improper storage and transportation of fuel oil in the state, and in some cases improper installation of oil burners in domestic ranges. He advocated that there should be state regulation which would give the Chief power to see that fuel oil hazards are reduced. Chief Elmer R. Capwell, of Coventry, Clarence W. Rogers, of Fisheville, Alfred N. Miner, of Boston, and Ex-Chief Irving S. Black, of Johnston, took part in a discussion which followed these comments.

First Aid Instructions to Firemen

It is proposed by the American Red Cross, Westchester County, N. Y., Chapter, to conduct a course for lay instructors in first aid, with the idea of having such a qualified instructor in each Fire Department in the county. The course will be held at the Chapter Headquarters, 90 Grand Street, White Plains, N. Y., beginning January 27 and including the dates of January 30 and 31, February 1, 2, 3, 6, 7, and possibly 8. There will be no charge for the actual instruction; a fee of one dollar will be charged for text book, bandages, equipment and incidentals.

As there is a class limit as to membership, it is suggested that those planning to register should do so at once. Applications for the course can be obtained from David J. Yates, Director, First Aid and Life Saving, at the Chapter's headquarters. The course will be under the direction of W. J. Fenton, M. D., Member of National Red Cross First Aid Staff.

The Course will be conducted in periods of two hours each, with a minimum of eight periods and a maximum of nine. Number to be left to discretion of Instructor.

Syllabus

Lesson 1.	(a)	Definitions and purposes of First Aid.
	(b)	General directions.
	(c)	Brief outline of physiology and anatomy.
	(d)	Shock.
Lesson 2.	(a)	Bandages and dressings (or compresses).
	(b)	Injuries where the skin is broken—minor wounds.
	(c)	Infection.
	(d)	Shock.
Lesson 3.	(a)	Bandages, continued.
	(b)	Injuries where there are wounds, with severe bleeding. Points of pressure. (Misuse and Use of tourniquets.)
	(c)	Punctured wounds.
	(d)	Infected wounds.
	(e)	Special wounds.
	(f)	Teaching methods.
Lesson 4.	(a)	Shock.
	(b)	Fractures—Simple.
	(c)	Splints—improvising.
Lesson 5.	(a)	Fractures (compound).
	(b)	Dislocations, sprains, strains and bruises.
	(c)	Splints, continued.
	(d)	Teaching methods.
Lesson 6.	(a)	Midcourse review—teaching methods.
	(b)	Burns, scalds.
	(c)	Sunstroke, heat exhaustion, frost-bite and freezing.
Lesson 7.	(a)	Suffocation and gas poisoning.
	(b)	Drowning and hanging.
	(c)	Electric Shock.
	(d)	Artificial respiration—prone pressure method. Use of Inhalator.
Lesson 8.	(a)	Fainting.
	(b)	Unusual conditions in general—skull fracture.
	(c)	Poisons.
	(d)	Common emergencies and home accidents—How to properly call the doctor.
Lesson 9.	(a)	Transportation of the injured. Proper handling. Improvised stretcher.
	(b)	Lifts and Carries.
	(c)	Final Review.

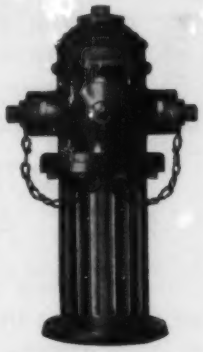
John R. Murphy of Boston, Dead

Death claimed John R. Murphy on December 28, former Fire Commissioner of Boston, Mass. The funeral was held on December 30 with a solemn high mass of requiem in St. Cecilia's Church.

Mr. Murphy served twice as Fire Commissioner of Boston, first for a term of eight years as a member of the "three headed commission" composed of three members and again in 1919 he was appointed Fire Commissioner by Mayor Andrew J. Peters. During his administration the high pressure water system was installed, its completion being due largely to his efforts and initiative.

He served as a member of the state legislature in both

Here's why FIRE CHIEFS recommend



CRISPIN
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FIRE departments should demand hydrants especially designed for fire service. The CRISPIN hydrant was designed to help you fight fires more efficiently, Chief. Before you replace old hydrants or install new ones, we suggest you let us send you our folder which completely describes CRISPIN hydrants and just why you should recommend them for your city or town.

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Assistant Chief, New York Fire Department
In Collaboration with PAUL W. KEARNEY

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"Get inside"—Why firemen should know how to swim—Gas—Temperatures in a burning building—When necks blister and coats fall apart from the heat—Backdraught.

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Fire kills twenty civilians for every fireman—How to open a door in a burning building—Why they die before the flames reach them—The pitfalls of fire escapes—The invaluable Automatic Vent—Why a fire "mushrooms."

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A human stampede—Fifty-two dead on their feet—The menace of the blocked stairway—If schools were as safe as factories—Open elevator shafts—We lack the courage to demand safety.

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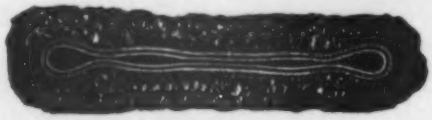

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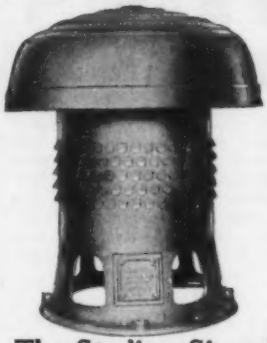

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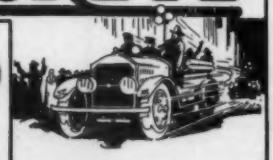

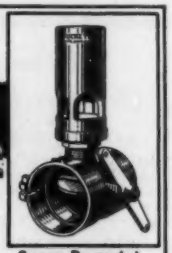

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branches and was also Wire Commissioner, Water Commissioner, and Chairman of the Finance Commission during his long career in public life. He was twice a candidate for Mayor of Boston, being defeated by a small margin. In recent years he had practiced law.

John R. Murphy was 76 years of age and had been in failing health for some months. Death was due to pneumonia. He was born in the Charlestown district of Boston, August 25, 1856. He is survived by his widow and three daughters.

HARRY BELKNAP.

New England Chiefs Fix Meeting Dates

The eleventh annual convention of the New England Association of Fire Chiefs will be held in Lewiston, Maine, June 20, 21, and 22, by vote of the officers and Board of Directors at a meeting held in the Parker House, Boston, Mass., on December 21.

The meeting was attended by Chief Alfred H. Koltonski, of Rutland, Vt., President; Chief John W. O'Hearn, of Watertown, Mass., Secretary-Treasurer; Chief James M. Casey, of Cambridge, Mass., Director; Chief John S. Pachl, of the Annex Fire Department, New Haven, Conn., Director; Chief Oliver T. Sanborn, Portland, Me., Director; Harry Belknap, of Boston, Press Representative; Chief Daniel B. Tierney, Arlington, Mass., Fire Commissioner Joseph W. Scannell, of Lewiston, Me.; Alfred Miner, Chairman of the Massachusetts State Fire Prevention Committee; and W. C. Hill, of Boston.

It was voted to charge a two dollar registration fee which will include a banquet ticket. Rooming accommodations and exhibit hall arrangements were discussed. Fire Commissioner Scannell extended the invitation to meet in Lewiston.

Secretary O'Hearn reported the following deaths of members of the association since the last meeting: Fire Commissioner John C. Fox, Rutland, Vt.; Ex-Deputy Chief Joseph A. Dolan, Boston, Mass.; Chief William C. Green, Concord, N. H.; Battalion Chief Thomas F. O'Connor, Washington, D. C.; Fire Commissioner Willard W. Estabrook, Brookline, Mass.; and Ex-Chief Sewall M. Rich, of Somerville, Mass.

HARRY BELKNAP.

Westchester Chiefs Hold Instructive Meeting

One of the most instructive and educational meetings held by the Fire Chiefs' Emergency Plan took place at the Fire Patrol Building, Ossining, N. Y., on Wednesday, December 21. The meeting, which was presided over by the President, Chief Arthur Steuhl, of Eastchester Township, was attended by about sixty members. Acting Mayor W. G. Woods, of Ossining, in welcoming the members, said that the local Fire Department had gained much knowledge from the activities of the Plan. Regret was expressed for the illness of Chief Gibson, who was confined to his home in Mount Vernon.

Among the speakers were Ex-Chief Mulcahey, of Yonkers, who spoke on the Science of Fire Fighting; Captain Dennis A. Cooper, of the Traffic Bureau, Yonkers Police Department, on the importance of traffic regulation and cooperation between police and firemen; and Chief Grabb, who spoke on gasoline vapors and explosives in relation to storage tanks.

Captain Yates, of the Westchester Chapter of the Red Cross, gave some figures of motor accidents, in which he stated that over a period of eighteen months ending July, 1931, there were 50,900 persons killed. He referred to the proposed course in First Aid to be given by his chapter and hoped each Fire Department in Westchester County would send a delegate, so that such individual could return to his department as an instructor.

It was decided to hold the next regular meeting at Fire Headquarters, Mount Vernon, N. Y., on Wednesday, January 18, on the invitation of Chief Gibson.

New Fire Association Formed

The Mid-Hudson-Harlem-Valley Fire Chiefs' Association was formed at Rhinebeck, N. Y., with Chief Cady of Arlington, N. Y., President. This group was formed for interchange of ideas among departments in Dutchess, Ulster and Putnam Counties. The next meeting will be held in Arlington on February 4.

Battalion Chief Thomas F. O'Connor, member of the District of Columbia Fire Department for thirty-six years, died at his home at the age of sixty, following a heart attack. He organized the training school of the department in 1922. He was a specialist in Red Cross and first aid work. The late Chief is survived by his widow and two brothers.

INDEX TO VOLUME LXXXV

The Index to Volume LXXXV, covering the issues of FIRE ENGINEERING from January to December, 1932, is now on the press and will be mailed to readers on request.

Chief Fuller of Brawley, Cal., Resigns

W. A. Fuller, Chief of the Brawley, Cal., Fire Department, resigned rather than throw some of his men out of work, when it became apparent that there would be another cut in wages and personnel.

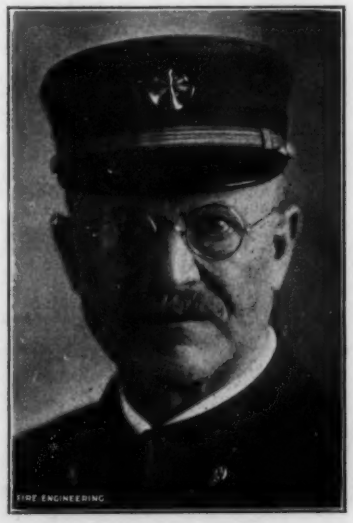
Chief Fuller is a retired Battalion Chief of Pasadena and besides his pension has other sources of income. All members of the Brawley Fire Department are dependent upon their present employment for support of themselves and their families.

Chief Fuller came to Brawley in June 1, 1931, to strengthen a weak department and to develop it into an efficient fire-fighting organization. The Mayor said that they were well pleased with the work and results obtained by Chief Fuller.

Assistant Chief H. L. Stewart will be advanced to Chief but at no increase in salary.

Chief Nice of Columbus Resigns

Allen E. Nice, Chief of the Columbus, Ohio, Fire Department since March 17, 1926, and a member of the fire force for forty-four years, resigned on January 1. He is sixty-eight years old. Physicians recommended that he take a complete rest as he was suffering from myocarditis.



Ex-Chief Allen E. Nice

Chief Nice became substitute fireman on June 1, 1888 and two months later was made a regular member of the department. He was advanced to Lieutenant on August 1, 1893 and on February 1, 1897 became a Captain. Nice served as Battalion Chief for a month commencing February 5, 1908 and then was promoted to Second Assistant Chief. Advancement to First Assistant Chief came on December 16, 1915. Following the retirement of Chief Jenkins Daniels, he was named Chief on March 17, 1926.

Chief Nice twice underwent operations necessitated by injuries during fires.

Assistant Chief Willis B. Hunt, a member of the department since 1890, has been appointed Acting Chief until a permanent Chief is selected.

Chief Schwartz of Kenosha Resigns

J. J. Schwartz, Chief of Fire Department of Kenosha, Wis., since 1917 has presented his resignation because of ill health. He entered the fire service on February 1, 1906 as a driver. In July, 1917, he was named Acting Chief and six months later, Chief.

In the interests of economy, Spencer, Ia., has taken steps to cut down the number of men who will respond on first alarms and the number of pieces of apparatus that will make the run. An inspection will be made of all possible hazards in an attempt to reduce fires.

FIRE DEPARTMENT ACTIVITIES

Avis, Pa., is considering a new fire alarm system.

Wooster, Ohio, has purchased fire apparatus which will be delivered early in December.

Brookhaven, N. Y., has received a 500-gallon Buffalo pumper. It carries a 400-gallon booster tank.

Two fire stations may be abandoned in Oakland, Cal. The City Manager is considering this step as an economy move.

William H. McManus has been appointed Fire Commissioner of Brookline, Mass., to succeed the late Willard W. Estabrook.

Sylvan Beach, N. Y., voted for a $6,000 pumper of 500 gallons capacity and a $3,000 fire station. The fire district will issue bonds.

The City Council of Cambridge, Mass., voted $230,000 for the construction of a new fire house and fire alarm headquarters near Harvard Square.

Chief Joseph A. Cribby of the Somerville, Mass., Fire Department, has retired on a pension after thirty-seven years of service, the last three years as Chief.

The Fire budget of Milford, Conn., was cut $20,000 by the Board of Fire Commissioners. Last year $71,135 was appropriated and this year the board is asking for $51,298.

The Gloucester County Fire Chiefs' Association elected George A. Regnault of Woodbury Heights, N. J., President and T. Howard May, also of Woodbury Heights, Secretary.

Members of the Rock Rapids, Ia., Volunteer Fire Department appeared before the City Council recently to present a request for new fire apparatus which is needed immediately.

A larger fire department for Richmond, Cal., has been recommended by the National Board of Fire Underwriters. The present fire alarm system is considered inadequate "with unreliable features."

Hicksville, N. Y., has formally opened its new $80,000 fire station. The building is of brick and stone and is large enough to accommodate apparatus of all the fire companies of the department.

Alonzo Earle has been appointed Chief of the Norwood, Mass., Fire Department, succeeding Chief John J. Hannigan who resigned three months ago. Chief Earle was a call fireman for many years.

A short wave radio set has been installed in the automobile of Chief E. P. Kohout, Cedar Rapids, Ia., so that he will be able to receive communications from the police headquarters while at fires.

Chief Edward P. Young, in charge of the Watervliet, Mich., Fire Department for twelve years, has tendered his resignation because of ill health. He will remain in office until his successor is named.

Chief Joseph Bergen of Butler, N. J., and Gorden Decker, of Keil, N. J., were re-elected President and Secretary, respectively, of the North Jersey Volunteer Firemen's Association at their last annual meeting.

The Board of Fire Masters, Charleston, S. C., has recommended the construction of a new fire house and the installation of a new company therein, to be situated somewhere in the northwestern section of the city.

A new fire alarm system has been installed in the central station of the Fire Department of Boise, Idaho. The system consists of one section of the old alarm machinery and approximately $7,000 worth of new equipment.

Thomas F. Dougherty. Assistant Chief of the New York Fire Department, recently lost his son, Austin F. Dougherty, a practicing attorney in New York City. He died of etherpneumonia, following a serious abdominal operation.

Insurance men of Vancouver, Wash., met with the local Chamber of Commerce to advocate steps to secure higher insurance rating for the city. A full time fire chief, a modern building code and a new fire station are requested.

The right of firemen and police to "go through" red traffic lights at street intersections was upheld by Frank J. Merrick, Safety Director of Cleveland, Ohio. One fireman was killed and seven other persons were injured recently when the driver of a department truck disregarded a traffic light. Reports showed that the apparatus driver abided by all rules of the Fire Department. Mr. Merrick said, "Firemen are permitted to go through red lights and motorists should obey the law when they hear the siren by pulling over to the right hand curb and stopping."

The historic fire boat "New Yorker," which has seen service in New York City for forty-three years, has been placed on the block for public auction. Her equipment is not considered adequate to handle fires according to modern methods.

Charles Leahy, Chief of the Stevens Point, Wis., Fire Department was recently retired from that office. According to City Manager Peter Walraven, Capt. Frank Kirsling, next ranking officer will be placed in charge of the department.

The Educational Committee of the Rockland County Volunteer Firemen's Association would like to have demonstrations and short talks on various fire control devices at their meetings. Manufacturers interested are asked to write to Capt. Wm. Paul Babcock, Nyack, N. Y.

A rescue truck for the Hewlett Bay Fire District has been purchased by officials of Hewlett, N. Y. The apparatus is to be delivered about February 1, and will cost approximately $4,100. It is to be equipped with stretchers, first aid supplies, inhalators, salvage equipment, searchlights, electric lanterns, ladders, etc.

O. B. Miller of Williams, Cal., was elected President of the Northern California Firemen's Association at a convention held in Oroville. Other officers are S. Guy Lukens, Auburn, First Vice-President; H. K. Smith, Redding, Secretary and H. E. Smith, Treasurer. The next meeting will be held in Dixon some time in March.

Howard Russell, Secretary of the Massachusetts Farm Bureau and Chairman of the Committee on Farm Fire Protection, was the main speaker at a combined meeting of the Middlesex County Forest Fire Wardens' Association, and the Essex County Forest Wardens' Association, held in the Town Hall, Andover, Mass., December 14.

The annual Christmas Party and Ladies' Day of the Fire Chiefs' Club of Massachusetts was held on December 21 in the Parker House, Boston. A large number of members and guests were present. A luncheon was followed by vaudeville entertainment and the distribution of gifts by Santa Claus. Chief William C. Mahoney of Peabody was in charge of the program.

New officers of the Alameda County Association of Firemen are Chief Walter Steinmetz, Alameda, Cal., President; Chief Bert Rose, Emeryville, First Vice-President; Chief Frank Magruder, Centerville, Second Vice-President; Chief Carl Ahl, Albany, Third Vice-President; Batallion Chief Frank Sande, Oakland, re-elected Treasurer and Carl Goeppert, Berkely, re-elected Secretary.

An ordinance, which is designed to have gas companies apply for a permit before any gas installation can be made, is urged by Chief John Briones of Martinez, Cal. A gas explosion, at Belvedere in which several firemen were killed, prompted the action taken by Chief Briones. Natural gas is used locally and because it has not the strong odor of artificial gas, it is considered more dangerous.

The Council of Warsaw, Ind., recently rescinded the motion made in April, 1931, whereby a charge of $30 must be guaranteed to the Fire Department for answering calls outside the city limits. In the future, while this sum will be requested, the fire truck will immediately respond regardless of whether or not payment is guaranteed. This action was taken by the Council as the result of a fire occurring in which one life was lost.

A new modern fire station has been completed at Two Rivers, Wis. The building is two stories and basement. It is equipped with living quarters for the men, chief's office and bed room, a recreation room, a large dormitory which occupies most of the second floor, showers, etc. It has three sliding poles in place of one in the old station. The basement comprises a storage room, boiler room, coal room, base of the tower where hose used by the street department is to be stored, and the electric service room. The hose tower has a capacity of fifty lengths of hose.

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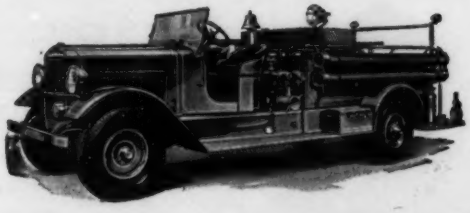

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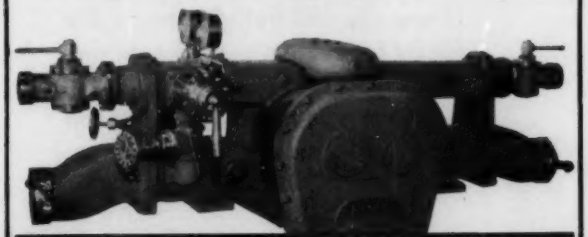

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PROPOSED IMPROVEMENTS

Elizabethtown, Penna. — Elizabethtown Fire Co. making plans for extending the fire alarm system, according to reports.

Pumper for Sale

Elmont, L. I., N. Y.

Bids received up to Jan. 31, 1933—Sale made Feb. 3, 1933

The Board of Fire Commissioners of the Elmont Fire District, Elmont, L. I., Nassau County, have been authorized by the taxpayers of said Fire District to place the Webb Pumper on sale.

Written bids will be received up to Jan. 31, 1933, and disposition of sale will be made on Friday Eve., Feb. 3, 1933.

The Webb pumper may be seen in the Firehouse of Engine Co. No. 1, located on Biltmore Ave., Elmont, L. I. (opposite the Belmont Race Track).

BOARD OF FIRE COMMISSIONERS,
August J. Zunno, Sec.,
26 Scimitar Ave.

Brewster, Wash.—Fire department discussed purchase of truck at recent meeting. Bruce Plemmons, Chief.

Rock Rapids, Iowa—City council adopted motion to purchase new truck for fire department at estimated cost of $5,000. Bids to be invited at once.

Neillsville, Wis. — Reports state funds being raised for purchase of fire truck for use in town and rural districts. Contemplating a pumper equipped with two booster tanks.

Dodge, Nebr.—Reports state committee of fire department met recently with Board of Trustees to discuss purchase of new fire truck.

Utica, N. Y.—Fire Chief J. N. Sullivan recommended in his annual report the erection of two new fire stations.

CONVENTION DATES

Jan.—SOUTHERN CALIFORNIA FIRE CHIEFS' CLUB. Semi-annual Meeting. Secretary-Treasurer, Chief Charles E. Smith, Chula Vista, Cal.

Jan. 18—FIRE CHIEFS' EMERGENCY PLAN, of Westchester County. Regular Meeting. Fire Headquarters, Mount Vernon, N. Y. Secretary-Treasurer, Capt. E. Riviere, Fire Headquarters, Larchmont, N. Y.

Jan. 19—NEW JERSEY MUNICIPAL SIGNAL ASSOCIATION. Meeting, Kearney, N. J.

Jan. 26—NEW JERSEY STATE FIRE CHIEFS ASSOCIATION. Quarterly Meeting, Masonic Temple, Hoboken, N. J. Secretary, Fred A. Trowbridge, Morristown, N. J.

Feb. 16—CENTRAL WESTERN FIREMEN'S ASSOCIATION. Monthly Meeting, Miamisburg, Ohio. Secretary, A. Hertzel, Miamisburg.

May—DEL-MAR-VA VOLUNTEER FIREMEN'S ASSOCIATION. 4th Annual Convention, Easton, Md. (Exact date to be decided later.) Secretary, A. C. Bailey, Laurel, Del.

June—KANSAS STATE FIRE CHIEFS' AND FIREMEN'S ASSOCIATIONS. Conventions to be held at Wichita, during month of June. Also during June Associations will conduct ten one-day fire schools in ten different towns; first one in Seneca, Kan. Secretary, Chief K. D. Doyle, Wamego, Kan.

June—NORTH DAKOTA FIREMEN'S ASSOCIATION. 49th Annual Convention, Carrington, N. Dak. (Exact date to be decided later.) Secretary, H. L. Reade, Bismarck, N. D.

June—SIX COUNTY FIREMEN'S ASSOCIATION. Annual Convention, Carbondale, Pa. Secretary Fred Zeiser, Shamokin, Pa.

June 5-7—NEW MEXICO STATE FIREMEN'S ASSOCIATION. 11th Annual Convention and Fire College, Las Cruces, N. M. Secretary-Treasurer, T. A. Rosenwald, Albuquerque, N. M.

June 20-22—NEW ENGLAND ASSOCIATION OF FIRE CHIEFS. 11th Annual Convention, Lewiston, Me. Secretary-Treasurer, Chief John W. O'Hearn, Watertown, Mass.

July—WEST VIRGINIA STATE FIRE CHIEFS' ASSOCIATION. 2nd Annual Convention, Morgantown, W. Va. (Exact date to be decided later.) Secretary, Chief C. J. Powell, Romney, W. Va.

July 18-19—MARITIME FIRE CHIEFS' ASSOCIATION. 19th Annual Convention, Digby, N. S., Can. Secretary-Treasurer, Captain Kenneth J. MacRae, Puggsley Bldg., St. John, N. B.

Sept.—KENTUCKY FIREMEN'S ASSOCIATION. Three-day convention, exact date to be set later. Secretary, Capt. S. G. Render, 940 Starks Bldg., Louisville, Ky.

Wohlers Chief of Charleston, S. C.

John H. Wohlers was elected Chief of the Charleston, S. C., Fire Department at the annual meeting of the Board of Firemasters, and he fills the vacancy caused by the death of the late Chief Louis Behrens. Since the passing of Chief Behrens, the duties of department head have been carried out by Chief Wohlers.

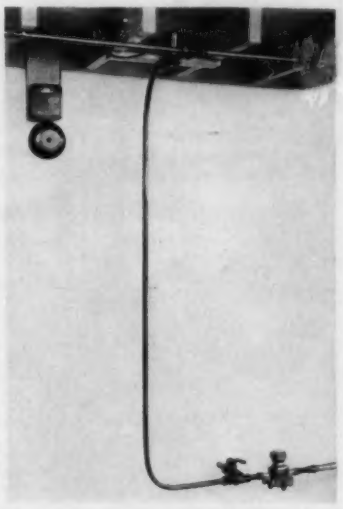
He was appointed a sub-callman on July 15, 1902. His promotion to the various offices follows: callman, December 5, 1906; permanent fireman, April 15, 1910; permanent foreman, March 5, 1911; instructor, fire school, July, 1916; Third Assistant Chief, April 21, 1920; Second Assistant Chief, April 6, 1926; First Assistant Chief, May 7, 1930; Chief, January 2, 1933.

Chief Selden R. Allen of Brookline, Mass., was elected President of the local Kiwanis Club.

Sprinkler System to Safeguard Homes

A simplified sprinkler system has been developed by the Rockwood Sprinkler Company, Worcester, Mass., to protect homes against large fire losses.

From the water meter, a copper tube capable of withstanding freezing without cracking, is connected to laterals which supply the special sprinkler heads located in the home. A shut-off valve is located near the meter. In the event that a sprinkler head opens, the alarm valve operates the circuit which is connected to the electric bell.



Rockwood "Home Guard"

Special Policy

A novel plan designed to meet the problem of collecting pay for answering outside calls, was announced by Safety Director Ralph A. Baulhof of Canton, Ohio. According to the new arrangement property owners will be able to purchase a fire department service clause in their fire policies at a nominal cost. The department will only respond to outside calls where the property owner has purchased such a clause from his insurance agent.

This policy provides that the insurance company will pay the cost of the run for the insured. In no case will the cost of this special protection exceed fifty cents a year.

Luverne Pumper Chassis on Market

A 1,000-gallon pumper triple combination, furnished either as a complete unit ready for service or as a chassis and pump to be outfitted by the purchaser, has been placed on the market by the Luverne Fire Apparatus Company, Luverne, Minn.

The Luverne apparatus includes Timken axles, Blood universals, hydraulic brakes, 12-volt double electric equipment, Ross steering mechanism, Continental motors and Northern pumps.

Coney Island Has Another Fire

Coney Island, far famed for its amusement attractions, its freak shows and as the playground of New York City's millions, was visited by a five-alarm fire on December 21 which threatened to equal the fire of last July when 1,000 persons were made homeless. A fire boat was sent in response to the third alarm and it was used to pump water into the high pressure system. The fire caused damage estimated at nearly $200,000. It razed an area of 157 feet on Surf Avenue and a depth of 200 feet on West Fifth Street. A change in the direction of the wind prevented the flames reaching a long row of frame structures in the direction of Luna Park, five blocks away.

Wine at Fires Cheaper Than Water

The other fellow's pastures are always the greener, and it will be with more than a casual sigh that firemen in this country will long for employment in the historic section of Tokay, Hungary.

That area is suffering both from a shortage of rainfall and a shortage of business for its excellent wine. In some places wine has been literally cheaper than water, and fire departments are using barrels of it carelessly for extinguishing blazes where water is scarce.

Worthington, Ky., has purchased fire apparatus equipped with a 200-gallon booster tank.

FALSE ALARMS

Courtesy, New York American

"Goodness, not that one—it's a guest towel!"

STRICTLY BUSINESS

A boy of the neighborhood formed a habit of playing in front of the fire station and eagerly listening to the conversation of the men who were quartered there. He tried to imitate their every way.

His mother was quite shocked to learn that he had formed the habit of using the word "darn" frequently.

"Dear," she said to the boy, "here is a dime. It is yours if you will promise not to say 'darn' again."

"All right, mother," he said as he took the money. "I promise." As he fingered the coin a hopeful look came into his eyes and he said:

"Say, mother, I know a word that's worth a dollar."

"Who nex'?" shouted the Italian barber, and not a woman among them stirred.

VALUELESS

"Just like a man," she shouted. "The only thing you could think of saving from the fire was a case of whiskey."

"But, my dear," he answered, "just think how handy the bottles will be when you make your tomato catsup."

HIS WEAKNESS

A traveling evangelist had been hearing things concerning activities at the fire hall, and he decided that he had found a field for his activities. When he entered the house he found a single fellow oiling up the engine. Without pausing to inquire where the others were at the moment, he started his sermon:

"Don't you believe, my friend, that it would be much better for you if you changed your habits? Why, you are continually breaking one of the Commandments."

"You are wrong there, parson," he answered, "I don't have any trouble with a single one of the Commandments. It's the amendments I simply can't keep."

CATALOGUED

A kindly neighbor who still retained her English accent decided to call on a fireman who had just come home from the hospital.

"Been in the 'ospital, er?" she remarked as a matter of conversation. "Was yer surgical or medical?"

"What do you mean?" he asked.

"Well, was yer ill when yer went in and they made yer well, or was yer well when yer went in and they made yer ill?"

"It's the little things that tell," said the older sister as she yanked her young brother from under the sofa.

HE LOST

An old town character loved to stop at the fire house and idle away some of the hours for which he could find no other thing to do. He pulled his chair up to a table where a group were playing bridge, and he started to lecture on the follies of modern youth.

"You know what! You boys of today want too much money. Do you know what I was getting when I married?"

And the wit of the group answered, "No, and I'll bet you didn't either."

Wishing you more genuine laughs for the New Year!

Drawing by "Art" Espey

One Case of the Mountain Coming to Mahomet

In a small city in the northern part of New York, firemen are suffering because of a curtailed budget. No funds were available to finance repairs to the fire station roof. Instead of facing water after they had arrived at a fire, the firemen found that it was possible to enjoy the official showers even in their own station. Whenever it rained, the roof served as a sieve. One graduate of this city's recent fire school remarked, "We've had pompier—we've had smoke tests but it's the first time we've had to go to bed in full fightin' togs." And no doubt the city's efficiency expert replied, "Well, what else are them rubber clothes for?" There is one cheerful thought. On cold nights it is possible to plug the leaks with ice.

What Will You Have?

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5 Aerial Trucks
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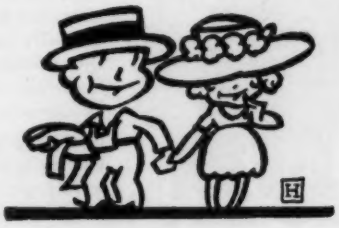
7 Alarm Systems, Industrial
8 Alarm Systems, Municipal Telegraphic
9 Alarms, Thermostatic
10 Asbestos Clothing
11 Badges, Insignias, Buttons, etc.
12 Banners, Trumpets, etc.
13 Battery Jars
14 Battery Zincs for Fire Alarm Batteries
15 Bells, Fire Alarm, Municipal
16 Body Equipments
17 Boxes, Gongs, Reels, Registers, Fire Alarm
18 Brakes, Air
19 Brake Linings
20 Brooms, Fire
21 Building Materials, Fire Retardant
22 Caps, Firemen's
23 Chains, Non-Skid, Fire Apparatus
24 Chassis for Fire Apparatus
25 Chemical Engines and Tanks
26 Chimney Fire Fuses and Compounds
27 City Service Trucks
28 Coats and Suits, Firemen's Quick Hitch
29 Combination Chemical and Hose Cars
30 Cutting and Welding Equipment, Blow Torch
31 Cutting and Welding Equipment, Electric
32 Deluge Sets
33 Door Openers, Fire Station, Automatic
34 Electric Light Plants
35 Extinguishers, Calcium Chloride
36 Extinguishers, Carbon Dioxide
37 Extinguishers, Soda-Acid
38 Extinguishers, Carbon Tetrachloride
39 Extinguishers, Foam
40 Extinguishers, Powder
41 Fire Boat Nozzle Equipment
42 Fire Department Supplies, General
43 Fire Exit Devices, Door Opening
44 Fire Alarm Posts
45 Fire Escapes, Portable
46 Fire Escapes, Rigid
47 First Aid Equipment
48 Flare Lights
49 Flashlights, Hand
50 Flood Lighting Equipment
51 Foam Generating Apparatus
52 Foam Liquid for Extinguishers
53 Gas Masks and Respirators
54 Gas and Smoke Helmets
55 Gas and Smoke Generators
56 Goggles, Firemen's
57 Helmets, Metal, etc.
58 Hose Bridges
59 Hose Carts, Reels and Racks
60 Hose Clamps
61 Hose, Fire
62 Hose, Chemical
63 Hose Holders
64 Hose Jackets
65 Hose Standardization Tools
66 Hydrant Draining Pumps
67 Hydrants, Fire
68 Jacks for Fire Trucks
69 Jacks, Shoring and Prying
70 Ladders, Fire
71 Lightning Arresters
72 Motorcycles, Fire Dept. Equipped
73 Nets, Life
74 Nozzles, Pipes and Miscellaneous Brass Goods
75 Packings, Pump
76 Pads, Pole Hole
77 Paints, Fire Resisting
78 Priming Ether, Motor
79 Pumping Cars, Standard
80 Pumping Cars, Foam
81 Pumps, Fire Apparatus
82 Pumps, Fire Service, Stationary
83 Pumps, Portable for Fire Protection
84 Record Books, Fire
85 Relief Valves
86 Reviving Apparatus, Oxygen
87 Rubber Clothing
88 Salvage Covers
89 Searchlights
90 Shingles, Fire Retardant
91 Shirts, Firemen's Special
92 Sirens, Apparatus and Chiefs' Cars
93 Sliding Poles
94 Soda and Acid Chemicals
95 Spark Plugs, Fire Apparatus and Motorcycles
96 Squad and other Auxiliary Cars
97 Sprinkler Head Shut-Offs
98 Sprinkler Supervisory Service
99 Sprinkler Systems, Automatic, Foam
100 Sprinkler Systems, Automatic Water
101 Steam Fire Engines
102 Syphons, Water
103 Tarpaulins and Fire Blankets
104 Tetrachloride Chemicals
105 Thawing Equipment, Hydrant
106 Tires, Fire Apparatus, Pneumatic, Solid, Cushion and Non-Skid
107 Tractors
108 Traffic Clearing Systems
109 Triple Combination Pumping Cars
110 Uniforms
111 Water Towers
112 Wheels, Cushion
113 Whistles, Fire Alarm, Compressed Air
114 Whistles, Fire Alarm, Steam
115 Whistles, Fire Apparatus
116 Wrecking Trucks



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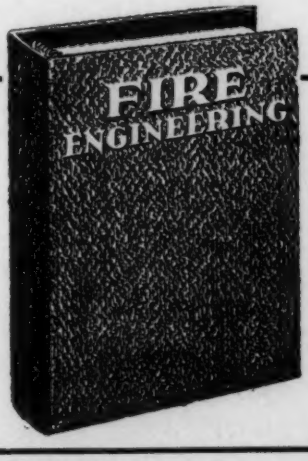

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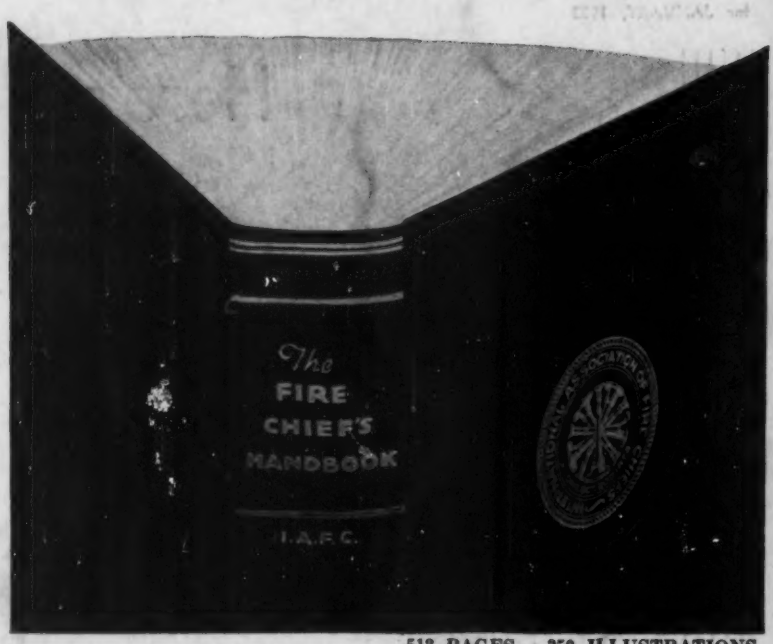

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